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There are presently 2,100,000 acres of National Forest land legally designated as wilderness under the Wilderness Act of 1964, in the Northwestern States of Washington and Oregon. This paper presents the results of a study conducted to find out what kinds of persons visit wilderness, the values and codes of behavior they associate with wilderness use, and their feelings about some hypothetical policies and guidelines that might be used in the management of these areas. Long questionnaires concerning these issues were sent to a sample of 1,950 recorded wilderness users. Wilderness visitation typically occurred in more highly educated, small family and friendship groups who take about five 2- to 3-day trips per year. About 30 percent (400) belonged to 218 conservation groups. A scaling technique was used to identify a hierarchy of wilderness users ranging from wilderness-purists to those more urban or convenience oriented. Those who were more wilderness-purist in attitude reacted differently to some of the statements (53 on wilderness management and 22 on codes of behavior) suggested in the questionnaire. The appendix contains a statistical summary of the responses to the questionnaire and an explanation of the gamma statistics used to measure the association between wildernism (wilderness-purist concepts) scores and response to individual questionnaire statements. (DK)

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WILDERNESS USERS IN THE PACIFIC NORTHWEST - THEIR CHARACTERISTICS, VALUES, AND MANAGEMENT PREFERENCES

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RC003649

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Three general conclusions to be drawn from this study are:

(1) Respondents who were more wilderness-purist in their orientation, as measured by the wildernism attitude scale, often differed significantly in their attitudes from the attitudes expressed by other respondents. We suggest that the views of these purists represent the opinions of the group of people most perceptive of wilderness values and should receive added consideration, where appropriate, to prevent contemporary change in a resource legally established to endure for all time.

(2) There was little variation among the attitudes of visitors to the three different areas studied, despite alleged differences in the type of user characteristic of each area (one-day hikers, backpackers, and horse users, respectively). Our study thus indicated little support for different management policies in different areas, other than that necessary to adapt to obvious local conditions, such as terrain, access and weather.

(3) Many users indicated preferences for facilities and development that are essentially prohibited under the terms of the Wilderness Act. These desires, combined with the rapid increase in wilderness use and the implications of our data for continued increases in use, suggest the presence of a major problem. Use may eventually exceed the carrying capacity of classified Wilderness resources (particularly in specific locations), yet a great percentage of the users will not be seeking wilderness in the pure and precise sense defined in the Wilderness Act. This may indicate a need for additional back-country recreation areas that could be managed as semiwilderness, thereby reducing the pressure of overuse on classified wilderness and facilitating its protection. Such areas would permit more intensive management to provide for heavier use than can be allowed on legally classified Wilderness and would better satisfy the needs of the less wilderness-purist users. Provision for such areas would also provide for proper management of many controversial areas which are considered too small or are now used too intensely to be consistent with the objectives of protection under the Wilderness Act. It would provide an alternative in these cases where the choice is often popularly conceived as either Wilderness or multiple use classification in a mutually exclusive sense.

Cover:
We found that more than one-half of all wilderness use takes place in small family groups, and most of the remaining use is by small groups of close friends. Seventy percent of the users reported taking their first wilderness trip before they were 15 years old.

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There are more than 4 million acres of classified and de facto wilderness on National Forest lands in Washington and Oregon, plus two National Parks with thousands of acres that may soon be classified as wilderness. This view is looking northwest up the Entiat River into the Glacier Peak Wilderness.

Introduction

The Need for Insight into Wilderness Users' Tastes and Preferences

Washington and Oregon contain 2,100,000 acres of National Forest land legally designated as Wilderness under the Wilderness Act of 1964 and approximately 2,000,000 additional acres of undeveloped back country. There are two National Parks within the State of Washington that include large undeveloped areas that may soon be legally classified as Wilderness. All of these areas are managed to preserve their natural conditions and to provide wilderness-type recreation opportunities for the public.

Officials charged with administering these areas are confronted with many problems. They must protect the physical resources from the effects of recreational use without altering the many esthetic dimensions of the wilderness environment. To carry out this responsibility, they must be sensitive to the aspects of wilderness valued by wilderness users, to their informal rules and customs, and to the reactions of these people to protective management measures.

This paper presents the results of a study to find out what kinds of persons visit wilderness, the values and codes of behavior they associate with wilderness use, and their feelings about some hypothetical policies and guidelines that might be used in the management of these areas. Long questionnaires concerning these issues were sent to a sample of 1,950 recorded wilderness users. An attitude scale included in the questionnaires was used to classify respondents on an attitude continuum, ranging theoretically from the wilderness-purists to those who were urban or convenience oriented. Respondents' attitude scores were then related to the rest of the questionnaire data to determine the extent to which wilderness-purists differed from other users. Not everyone who visits wilderness is a purist, and there are probably no wilderness users who are urban oriented in an absolute sense. But, there are relative differences in such orientations among wilderness users, and they are related to other differences in characteristics, behavior, and management preferences.

Wilderness Management--Not A Majority Vote Problem

The Wilderness Act of 1964 defines management goals for areas classified by law as Wilderness. Provisions of the Act permit certain activities and prohibit others in the protection of these areas. To meet the preservation goals stated in the Act, some management latitude is allowed and the sound judgment of administrators is essential. To be effective, of course, wilderness managers' judgment must be based on thorough and accurate knowledge of the resources they manage, including the impact of various kinds and amounts of use on those resources. The soundness of management practices must ultimately be assessed in terms of consequences, not just good intentions. To be valid and effective, management decisions must consider the probable reactions of users to various efforts to channel their behavior in one way or another. Thus, wise wilderness management requires adequate and accurate information about the characteristics, tastes, and preferences of wilderness users.

It goes without saying that there are ecological and other considerations, including legal provisions and constraints, which have to be taken into account in prescribing wilderness management policy. Accordingly, **information about user behavior and attitudes does not operate in a vacuum and is not the sole or ultimate criterion with which to shape wilderness management decisions.** It must be seen in perspective, yet it must not be neglected.

The purpose of this bulletin is to provide useful information, and not in any sense to imply that wilderness management can or should be reduced to a popularity contest. Two points back up this fairly obvious criterion. First, as pointed out by Mills,[1] "needs and desires must be tempered by the ecological capability of the land." Second, to quote Burch (1966), "the forest camping system is like an omnibus – the seats are often full but occupied by different persons as they adjust to the flow of time." As these points suggest, the use of popular preference to guide wilderness management is limited by physical constraints and might lead to contemporary changes if emphasis is not given to purist versus popular points of view.

We thus qualified all of the data on user management preferences by using analytic techniques to identify differences between the attitudes of passionately devoted wilderness-purists and other visitors who may not be as devoted to wilderness values.

In addition, we isolated response by the different areas from which visitors were sampled to guard against generalizing about visitor reactions, which might have varied according to the characteristics of the areas.

The Outdoor Recreation Resources Review Commission (1962) discussed frequency of use as a measure of wilderness commitment and related some of their findings to this measure. We considered relating differences in user attitudes about wilderness behavior and management policies to a similar measure of wilderness experience. However, this would have introduced several methodological problems, such as accounting for the relationship between age and use; i.e., older users would have had more opportunity to accumulate wilderness experience than would younger users, although both might hold purist attitudes and values. In addition, the opportunity for wilderness experience is affected by income, vacation time, etc.

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[1] *Mills, Archie U. Back country and the hand of man. Paper presented at the national meeting of the American Society of Range Management, Seattle, Wash., February 1967.*

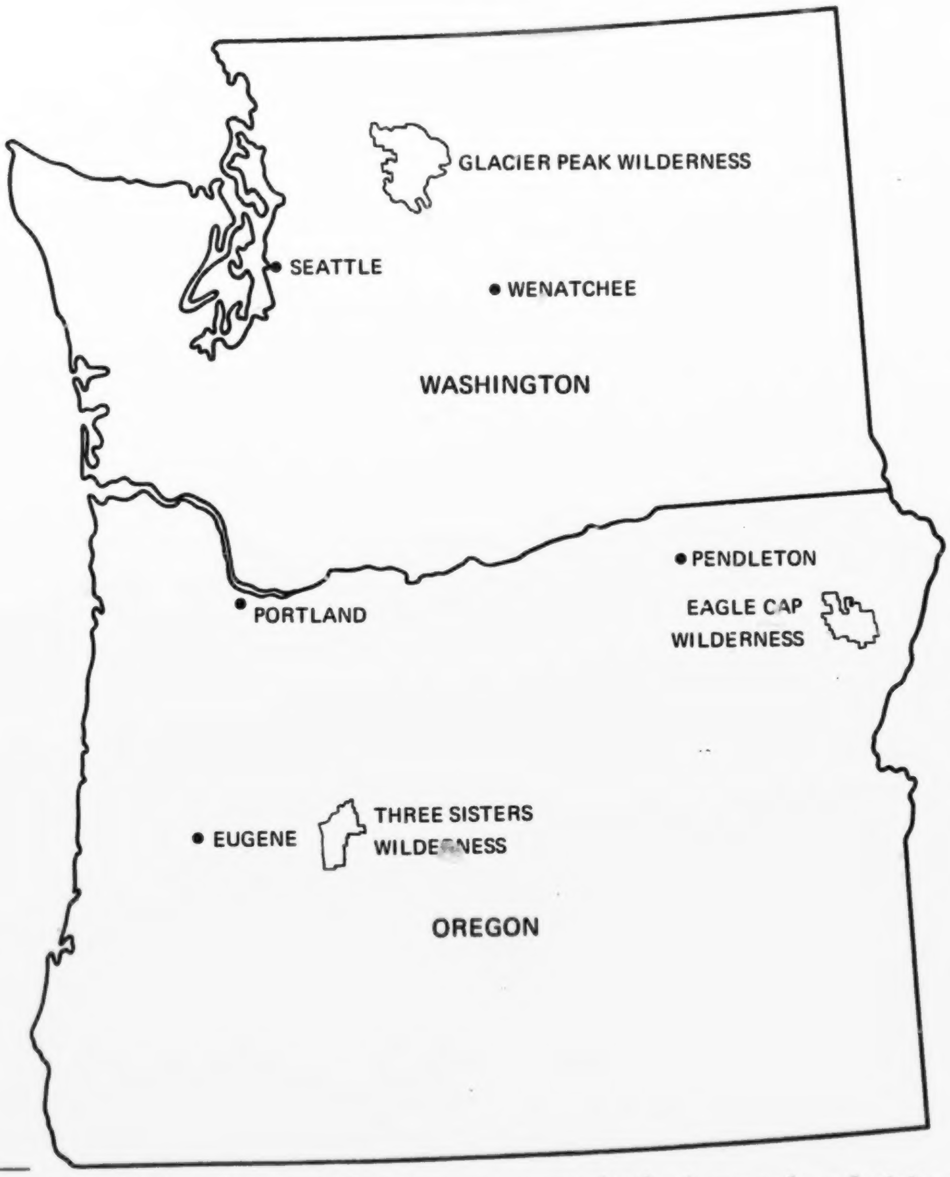
GLACIER PEAK WILDERNESS
SEATTLE
WENATCHEE
WASHINGTON
PENDLETON
PORTLAND
EAGLE CAP
WILDERNESS
THREE SISTERS
WILDERNESS
EUGENE
OREGON

Figure 1. – Location of the three wilderness areas studied. A sample of visitors to these areas were asked to complete questionnaires regarding their wilderness experiences.

Visitors to Three Areas Were Studied

Three wilderness areas (fig. 1) were selected for the study, and questionnaires were sent to a sample of known visitors during the summer of 1965. The Glacier Peak Wilderness in Washington and the Eagle Cap Wilderness and the Three Sisters Wilderness in Oregon were chosen because they were the three most heavily used wilderness areas in the Pacific Northwest and each was reportedly dominated in use by a different type of visitor: backpackers, horseback riders, and 1-day hikers, respectively.[2]

The names and addresses of visitors who were to receive questionnaires were obtained

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[2] *The designation of each area as characteristic of one type of use more than others was prompted by the frequent reference of administrators to such a classification and the results of an earlier study of visitors to the Three Sisters Wilderness (Burch 1964). However, our study indicated few instances where this classification accounted for variation in attitudes among users that was consistent with this perceived trend.*

REGISTER HERE

Self-registration of all users is now required on all Forest Service wilderness and primitive areas in Washington and Oregon. The self-registration system provides better estimates of use and contributes to the safety of users. This study is based on a sample of 2,000 visitors drawn from self-registrations in the Eagle Cap, Glacier Peak, and Three Sisters Wilderness Areas.

from a random sample of cards deposited at the 76 self-registration stations located within the three areas. Tests of the effectiveness and representativeness of the self-registration system suggest that about 75 percent of all wilderness visitors register, with the nonresponse concentrated among horseback riders, fishermen, hunters, solitary visitors, and frequent or long-time visitors to the area (Wenger 1964a; Wenger and Gregersen 1964). Conversion factors have been computed to account for the under-representation of such visitors when compiling estimates of use. However, such adjustments are not possible in a questionnaire study and returns thus represent a sample of a sample.

The Glacier Peak Wilderness – A Backpacker's Favorite

The Glacier Peak Wilderness straddles the Cascade Range, approximately 100 miles northeast of Seattle, in the Mount Baker and Wenatchee National Forests of Washington. It is within 2 hours' driving time for the 1½ million persons living in the Puget Sound Basin.

Glacier Peak, the fourth highest peak in Washington, dominates the area, rising 10,528 feet above sea level. More than 30 other peaks rise from 5,000 to 8,800 feet above intervening valleys. Most of the higher peaks contain icefields, and more than 90 glaciers can be found in the area. The area includes timber types and plant communities characteristic of both the humid west side of the Cascade Range and the drier east side.

The 452,020-acre Glacier Peak Wilderness was formally established by the Secretary of Agriculture on September 6, 1960. When the Wilderness Act (Public Law 88-577) was passed by Congress and became effective on September 3, 1964, the Glacier Peak Wilderness was incorporated into the National Wilderness Preservation System.

There is access into the area on all sides from approximately 25 trails. Forest Service officials estimate that, in 1956, 2,875 persons visited the Glacier Peak area. Their estimates for 1958 indicated an increase to 3,200 visitors. In 1965, 25 self-registration stations were erected on trails inside the area. Adjusted data from visitor registrations at these stations indicated that 6,100 persons on foot and 1,300 horseback riders visited the area in 1965, for a total of 7,400 visits and almost 400,000 man-hours of use.[3] Thus, most but not all of the visitors to Glacier Peak are backpackers.

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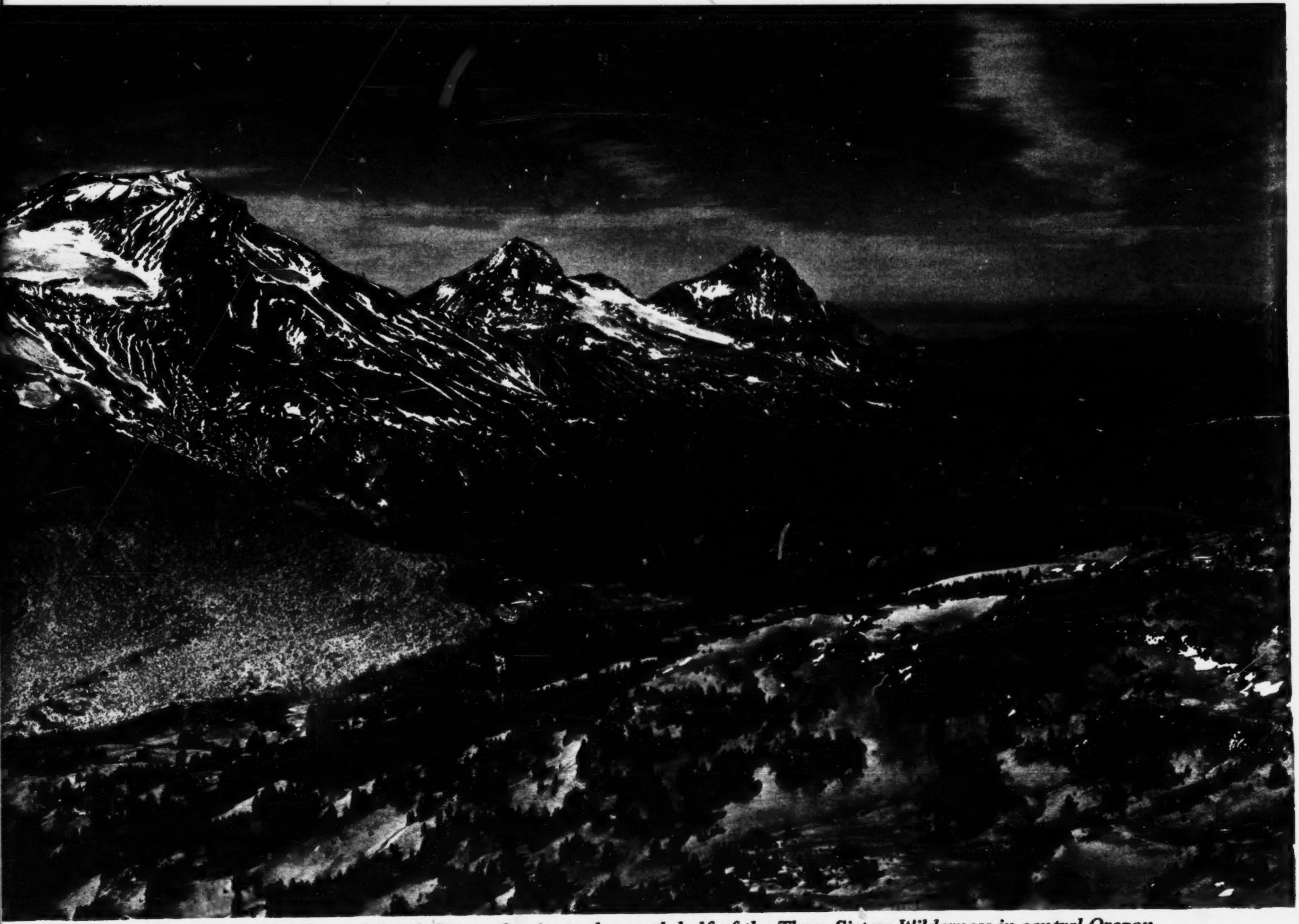
[3] *U. S. Forest Service memorandum and accompanying tables, dated March 14,1966, from George A. James to Philip L. Heaton, Assistant Regional Forester, Pacific Northwest Region, transmitting results of wilderness self-registration data for Washington and Oregon adjusted to account for known bias trends. For a discussion of self-registration bias, see Wenger (1964a) and Wenger and Gregersen (1964). A brief summary of their work is found in Morse (1966).*

Looking northwest up the Napeequa River into the Glacier Peak Wilderness. Glacier Peak in the center, Clark Mountain on the left.

The rugged Glacier Peak Wilderness is particularly attractive for backpackers.



The North, Middle, and South Sisters dominate the north half of the Three Sisters Wilderness in central Oregon.

The Three Sisters Wilderness – A Day-Hiker's Area

The Three Sisters Wilderness straddles the Oregon Cascades, about 75 miles east of Eugene and 40 miles west of Bend, Oregon, on the Willamette and Deschutes National Forests. Its boundaries are within 3 hours' driving time of Portland, placing the area within easy reach of the city's approximately 600,000 people.

The main attractions of the area are three volcanic mountains known as the North, Middle, and South Sisters. All three exceed 10,000 feet in elevation and lie in a north-south line to form a portion of the Cascade divide. Another peak, Broken Top, is over 9,000 feet in elevation. The Wilderness contains 2,200 acres of glacier fields, the most extensive glaciers this far south in North America. Volcanic cinder cones are also scattered throughout the area. Lodgepole pine is the most extensive timber type, although both east-side and west-side vegetation and their subalpine plant associations are found in abundance.

The 196,708-acre Three Sisters Wilderness was established by the Secretary of Agriculture in 1957, after several years of study. The area is now included in the National Wilderness Preservation System under the Wilderness Act of 1964.

Access to the area is relatively easy, since its north boundary lies along the McKenzie

An earlier study found that the Three Sisters Wilderness was used predominately by 1-day hikers who lived within a few hours' drive.

Pass highway and numerous trails lead into the interior. A study of visitors to the area in 1962 indicated that almost 80 percent of the visitors stayed less than 1 day, about 90 percent of the registrants were from Oregon, and almost 60 percent lived within 60 miles of the area (Wenger 1964a and 1964b, Burch 1964).

In 1965, 35 self-registration stations were located within the area. Adjusted data from these self-registrations indicated that 10,800 hikers and 1,900 horseback riders visited the area – 12,700 visits accounting for approximately 400,000 man-hours of use. Wenger's study of the Three Sisters Wilderness indicated that in 1962, there were 20,000 visitors. Few persons would agree that use of the area is decreasing. The discrepancy may be due to incomplete administration of the registration system, which was introduced for the first time on a Region-wide scale in 1965. James points out, in his summary of 1965 use figures,[4] "the use estimates shown are undoubtedly low. Exactly how much low is not possible to determine. As an admittedly wild guess, I would say that the estimates might average 25 percent too low." The foregoing data and the stated opinions of administrators are the basis for our characterizing the Three Sisters Wilderness as a predominantly day-hiker area.

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[4] *Ibid., footnote 3.*

Looking northwest over the Eagle Cap Wilderness. Left to right: Upper Lake, Lostine River Valley, Mirror Lake, Moccasin Lake, and Hurricane Creek Valley.

The Eagle Cap Wilderness – Favored by Horse Users

The Eagle Cap Wilderness lies in the Wallowa-Whitman National Forest in northeastern Oregon, about 75 miles southeast of Pendleton. The area is about a 6-hour drive from Portland, 3 hours from Boise, Idaho, and about 200 miles south of Spokane, Washington.

The Wallowa Mountains, where the area lies, are characterized by high alpine lakes and meadows, bare granite peaks and ridges, and U-shaped glaciated valleys with thick stands of timber. Elevation varies from 5,000 to almost 10,000 feet, Matterhorn Peak being the tallest at 9,845 feet. Nine peaks in the area are more than 9,000 feet in elevation. There are extensive stands of western larch and Engelmann spruce, although most of the area either is covered by subalpine timber types and grass or is barren.

In 1940, the Eagle Cap Primitive Area was reclassified by the Secretary of Agriculture as the Eagle Cap Wilderness. The 216,250-acre Wilderness is now part of the National Wilderness Preservation System under the Wilderness Act of 1964.

More visitors use horses (30 percent) in the Eagle Cap Wilderness than in any other in Washington or Oregon, but the opinions of most users from this area were no more favorable toward horses than those of users from the Glacier Peak or Three Sisters Wilderness.

Over 40 access trails lead into the area, but approximately 50 percent of the visitors enter from the Wallowa Lake trailheads. The Eagle Cap Wilderness is renowned for its horse users. We suspected that user opinions from this area would be markedly different as a result, but we found that they were not. There are no reliable use figures for the Eagle Cap Wilderness prior to 1965.

In 1965, 16 self-registration stations were established in the area. Data for that year indicated that 4,700 hikers and 2,300 horseback riders entered the area – 7,000 visits accounting for approximately 315,000 man-hours of use. The registration data indicate that in 1965 more persons used horses in this Wilderness than in any other Wilderness in the Pacific Northwest. In addition, administrators report that many of the hiking parties used packhorses. Thus, questionnaire responses by visitors to Eagle Cap might logically reflect horse-user sentiment and response of hikers to horse use more than responses from visitors to other Wilderness Areas, although to actually classify the Eagle Cap as a predominantly horse-users' area would be incorrect.

Questionnaires--
The Basic Research Tool

Data on the characteristics, attitudes, and management preferences with which this study is concerned were solicited by means of an eight-page questionnaire. The questionnaire called for response to 150 individual items. In spite of the length, **70.9 percent of the questionnaires were returned** with but one followup post card being sent. This is an exceptionally high rate of return, but typical of many outdoor recreation user studies. **It testifies to the interest, concern, and involvement of wilderness users with the management of these areas.**

Some other studies experiencing high rates of questionnaire return from wilderness users are: Sommarstrom,[5] 75-percent return with no followup post card from a sample of Olympic National Park back-country users; Burch and Wenger (1967), 89.7-percent return of a seven-page questionnaire from a sample of visitors to the Three Sisters Wilderness and adjacent auto campgrounds with two followup post cards; Hendee,[6] 60-percent return of a 13-page questionnaire sent to visitors recorded in two National Park back-country and three National Forest wilderness areas in western Washington, with no followup post card; and Lucas (1964a), 79-percent return of forms left on parked cars adjacent to the Boundary Waters Canoe Area.

The questionnaire used in this study was composed of six separate parts, all included in a 7- by 8½-inch booklet, eight pages in length. Part I contained a list of 20 possible features that might or might not exist in "remote back country of wilderness character." Part II was a list of 20 activities in which users might or might not expect to engage in wilderness-type areas. Part III listed 20 alleged benefits that might or might not be anticipated by wilderness users. In each of these sections, respondents were asked to indicate the degree of rejection or acceptance of each item by circling a number from -4 to +4.

Part IV listed 22 statements about rules and customs that wilderness users might feel obligated to observe in remote back country. Part V was a series of 53 statements suggesting policy and management guidelines relating to the administration of wilderness areas. In these latter two parts, respondents were asked to indicate their attitudes by circling symbols (SA, A, N, D, SD), which showed how strongly they agreed or disagreed with the questionnaire statements. Part VI requested extensive background information.

A total of 1,964 questionnaires were mailed to a random sample of individuals registering at the three areas – 1,348 questionnaires were completed and returned. Only 62 were returned unopened due to incomplete or nonexistent addresses. This low number of "duds" testifies to the reliability of the self-registrations. A total of 514 returns were received from individuals who were recorded in the Three Sisters Wilderness, 490 from visitors to Glacier Peak, and 344 from registrations in the Eagle Cap Wilderness. The percentage of returns was approximately the same from visitors to each of the three separate areas.

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[5] *Sommarstrom, Allan Ralph. The impact of human use on recreational quality: the example of the Olympic National Park back country user. 1966. (Unpublished master's thesis on file at Univ. Wash., Seattle.)*

[6] *Hendee, John C. Recreation clientele – the attributes of recreationists preferring different management agencies, car campgrounds, or wilderness in the Pacific Northwest. 1967. (Unpublished doctoral dissertation on file at College of Forest Resources Library, Univ. Wash., Seattle.)*

Part I

Demographic Characteristics of the Wilderness Users

Data were collected on a number of background attributes of wilderness users: age, education, marital status, number of children, environment of upbringing, voluntary association with conservation groups or outdoor clubs, amount of back-country recreation experience during the previous year, age at time of first trip into a wilderness-type area, and the number of close friends who also are wilderness users. This information can be important to planners and managers who must try to project increases in use and infer wilderness user expectations. The data also indicate which segments of society are motivated to participate in wilderness recreation and suggest some trends in the pattern of individuals sharing these qualities.

Age

The persons responding to the questionnaire were individuals registering as heads of the parties at the self-registration stations. The age distribution of these respondents is given in table 1 and compared with the United States population. It was not surprising that **wilderness users were mainly young to middle-aged adults, although all age groups were represented.** The majority were between 25 and 54 years old, but the 16- to 18- and

Wilderness users are typically young to middle-aged adults, but older users are frequently encountered. Hikers near Cascade Pass in the Glacier Peak Wilderness.

Table 1. – Age distribution of visitors to the Glacier Peak, Three Sisters, and Eagle Cap Wilderness Areas during 1965 compared with U. S. population

Item	Age groups (years)							
	0-15	16-18	19-24	25-34	35-54	55-64	65+	Total
	Percent							
Wilderness users	3.1	6.7	12.1	24.4	46.2	5.7	1.7	100
U.S population (1960)[1]	32.8	3.7	7.8	12.8	24.0	8.7	9.2	100

[1] *U. S. Bureau of the Census 1964; figures for the three youngest categories were interpolated to fit appropriate age designations.*

This distribution is comparable with results of other studies of wilderness users (Outdoor Recreation Resources Review Commission 1962; Burch 1966; Hendee, see text footnote 6, p.10).

19- to 24-year age classes were also overrepresented when compared with the United States population. It should be noted that 36.5 percent of the United States population in 1960 had not yet reached 19 years old, which is the age when wilderness participation significantly increases, and 32.8 percent had not yet reached 15 years. This suggests a substantial increase in the numbers of persons in the age groups containing potential wilderness users within the next decade.

Education

Wilderness users have been found to be a special group in that most of them are highly educated, more so than other recreationists. This pattern prevailed among the wilderness visitors responding to our questionnaire. Table 2 gives the distribution by educational attainment of wilderness users for this study and also for several other studies. These data indicate quite convincingly that people who have had at least some college experience are far more likely to be wilderness users than are persons with but a high school education or less, and persons with postgraduate educations are even more likely to visit wilderness. In fact, a composite review of table 2 indicates that **more than 60 percent of the respondents included in these wilderness-user studies come from less than the top 10 percent of the U. S. population in terms of educational attainment.** The growing number of persons moving into upper educational levels may account, in part, for the fact that wilderness use is increasing at much faster rates than other types of outdoor recreation.

Another proposition is that appreciation of wilderness values is diffusing downward in society, also accounting for part of the increase in use. A trend of lower education levels among wilderness users would support this proposition. The two oldest studies reported in table 2 date back only to 1960-61, but they do indicate a higher percentage of college-educated users than do more recent studies.

We do not feel this clearly substantiates the proposition because many intervening factors could account for the pattern; e.g., differences in study methodology, geographical location, etc. However, it is a small piece of evidence of the kind researchers might accumulate over time to determine if downward diffusing values are associated with the increasing use of wilderness.

Table 2. – Comparison of educational attainment of national and regional populations and of wilderness users in several studies

Item	Educational attainment			
	High school or less	College graduate or some college	Postgraduate work	Total reporting
	Percent			*Number*
U. S. population, 1960[1]	92.3	7.7		—
Washington and Oregon population, 1960[2]	90.9	9.0		—
Eagle Cap Wilderness, Oregon[3]	37.9	38.0	24.1	343
Three Sisters Wilderness, Washington[3]	36.1	33.5	30.4	513
Glacier Peak Wilderness, Washington[3]	35.0	36.0	29.0	490
Eagle Cap, Three Sisters, and Glacier Peak Wilderness combined[3]	36.2	35.6	28.2	1,346
High Sierra Wilderness, California, 1960[4]	18.0	49.0	33.0	179
Boundary Waters Canoe Area, 1960-61[5]	21.0	54.0	24.0	—
Three Sisters Wilderness and Mountain Lakes Wild Area, 1962[6]	35.9	32.7	31.4	474
National Forest Wilderness users, 1966[7]	34.6	35.4	30.0	848

[1] *U. S. Bureau of the Census (1964).*

[2] *U. S. Bureau of the Census (1962a, 1962b).*

[3] *From study reported in this paper.*

[4] *Outdoor Recreation Resources Review Commission (1962).*

[5] *Includes data for paddling canoeists only as opposed to motor canoeists, auto and boat campers, resort guests, private cabin and day users. Paddling canoeists are inferred to be wilderness users comparable to those classified as wilderness-purists in our study (Lucas 1964b).*

[6] *Data are for respondents classified on the basis of their previous 5-year camping experience as remote (only) campers and combination remote and easy-access campers (Burch and Wenger 1967).*

[7] *Data from sample of persons recorded in three National Forests and two National Parks in western Washington, who specified National Forest wilderness as their preferred camping environment (see text footnote 6, p. 10).*

About one-half of all wilderness use is by small family groups. Couples with children are overrepresented among wilderness users, compared with the censused population. Here, the author's family takes a rest on a trail in the Glacier Peak Wilderness.

Marital Status and Number of Children

Nearly one-fourth of the respondents were single, 75.3 percent were married, and the remaining 1.9 percent were separated, widowed, or divorced. These figures are comparable with the ORRRC (1962) study and a more recent study that included wilderness users from three areas in Washington State (see footnote 6, p. 10).

Of the married respondents, 15.2 percent had no children, 34.5 percent had one child, 41.0 percent had two or three, 7.7 percent had four or five, and 1.7 percent had six or more. This distribution is consistent with the inference made in an earlier study by Burch (1966) that "parents who adopt . . . the more demanding camping styles may very likely have young children." Even though preferences may shift, as Burch suggested, from remote camping to easy-access camping (or a combination of the two) and subsequently back to remote camping as families progress through the stages of the family life cycle, it is clear from both his study and ours that **couples with children visit wilderness far more frequently than childless couples.** Childless couples are very much underrepresented among wilderness users (table 3) compared to the censused population of Washington and Oregon while couples with one and two or three children are overrepresented.

Table 3. – Number of children for married wilderness users and Washington and Oregon population by study areas

Item	Number of children					
	None	1	2-3	4-5	6+	Total
	Percent of total					*Number*
Glacier Peak, Eagle Cap, and Three Sisters Wilderness users	15.2	34.5	41.0	7.7	1.7	877
Three Sisters Wilderness users, 1962[1]	14.5	11.7	52.0	19.6	2.1	469
National Forest Wilderness users, self-designated, 1966[2]	19.3	11.4	48.1	18.5	2.8	608
1960 census Oregon population[3]	36.6	19.6	32.5	11.4		459,812
1960 census Washington population[4]	35.1	20.0	33.2	11.6		724,685

[1] *Burch (1966; see table 3, p. 608). Data from this study are for respondents designated on the basis of their previous 5-year camping patterns as remote-only campers and combination remote and easy-access campers.*

[2] *See text footnote 6, p 10.*

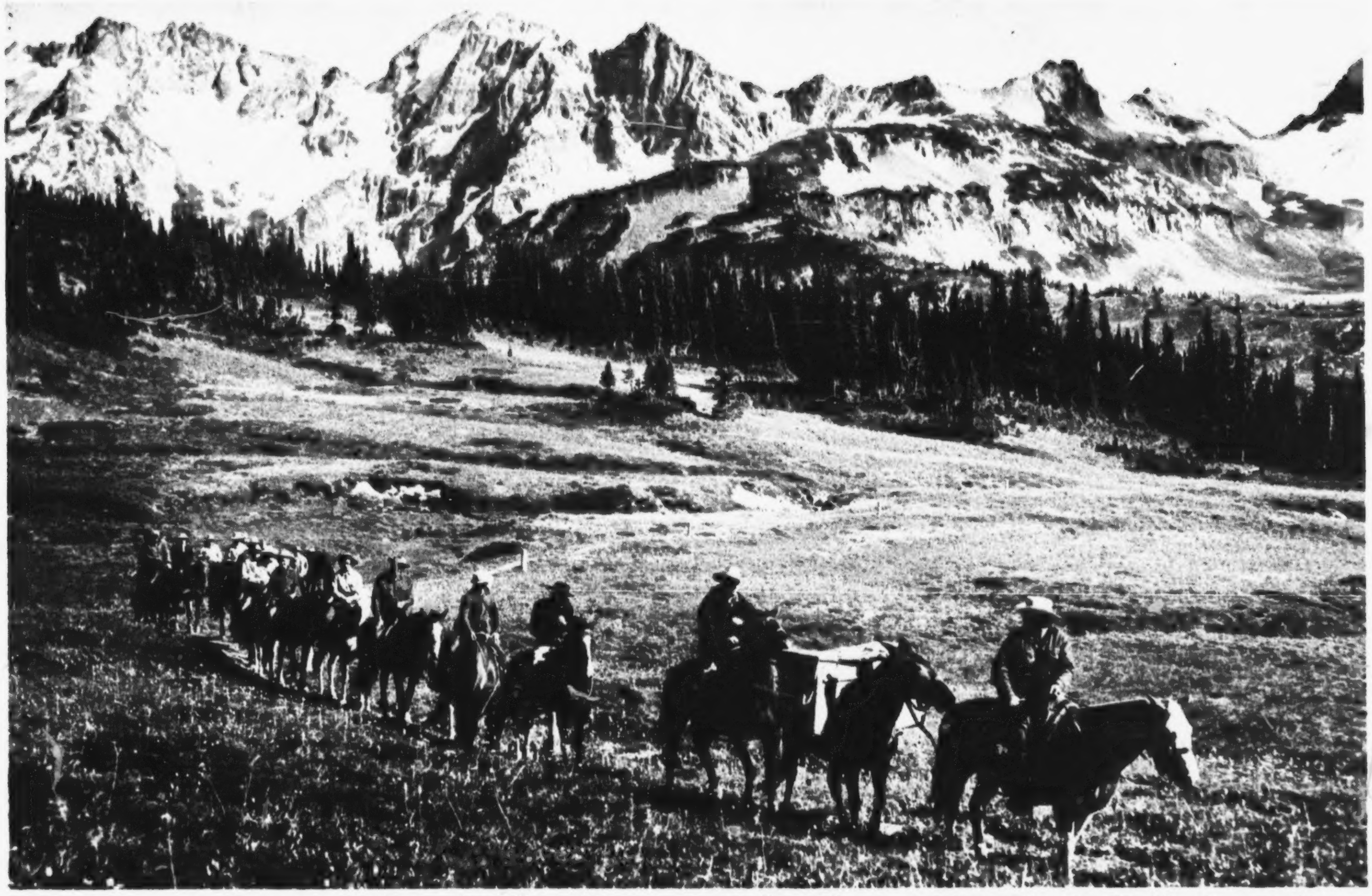
[3] *U. S. Bureau of the Census (1962a).*

[4] *U. S. Bureau of the Census (1962b).*

Favored Company

The questionnaire also revealed that 47.6 percent of the users usually engaged in wilderness recreation with their families only, 38 percent usually visited wilderness with their friends, 7.7 percent with organized groups, and only 6.6 percent commonly went into the wilderness alone. Together, the foregoing items indicate that **about one-half of all wilderness use is by small family groups, and much of the remainder is by small clusters of friends.** Thus, it can be said that **the wilderness experience is typically sought in the company of a few intimates.** A partial explanation from this phenomenon may be the benefits stemming from the simplified role playing, reduced status seeking, and interpersonal competition prevailing in such a group and the resulting feeling of solidarity among group members as they meet the challenge of distance, time, terrain, and weather (McKinley 1966).

The intimate composition of the typical wilderness party was identified by Stone and Taves (1956) as a potential source of therapeutic values from wilderness. They observed that "Among many psychiatrists and social psychologists, mental health is apprehended as a function of one's interpersonal relations. The family and the friendship (group) are crucial interpersonal relations in this respect.



Visits by organized groups make up less than 10 percent of all wilderness visits in the Pacific Northwest. Here, Trail Riders of the Wilderness cross meadows in Cloudy Pass in the Glacier Peak Wilderness.

Consequently, to strengthen such groupings – which sociologists find to have been weakened by the impact of industrialization and city living – may be . . . important for therapy and even the prevention of mental disturbance . . . certainly the wilderness experience extends the opportunity for strengthening intimate social bonds . . . ." This aspect of wilderness visitation deserves serious study by competent researchers.

Environment of Upbringing

Respondents were asked where they were mainly brought up: "a city," "a small town," or "a rural area," and their collective responses are given in table 4. The respondents were given no clues as to what constituted the three categories.

The ORRRC (1962) study of wilderness users revealed that visitors to such areas tended to be both city bred and more likely to reside in urban areas, although Burch and Wenger (1967) found childhood residence and camping style unrelated. We do not have data on the current residence of users in our study, and our data on environment of upbringing do not reveal as sharp a trend toward urban upbringing. We can conclude, on the basis of our data, only that wilderness use is about equally common among persons of either rural, small town, or urban upbringing. What is significant is that our increasingly urban culture produces persons motivated to use wilderness. Later in this report, we introduce evidence that wilderness users reared in urban areas tend to be more wilderness-purist in outlook than do those reared in rural areas.

Wilderness trips offer unique opportunities for strengthening bonds between family and friendship groups.

Table 4. – Environment of upbringing of wilderness users

Wilderness area	Childhood residence		
	Rural	Small town	City
	Percent of respondents		
Eagle Cap	32.1	42.1	25.9
Three Sisters	29.6	36.6	33.8
Glacier Peak	30.6	37.7	31.5
All three areas	30.6	38.5	30.9

Age of First Exposure to Wilderness-Type Recreation and Number of Close Friends Who Are Also Wilderness Users

Respondents were asked how old they were at the time of their first trip to a back-country area. **Nearly 70 percent indicated their first trip was before they were 15 years old. Forty-four percent of the respondents also indicated that three or more of their five closest friends participated**, at least occasionally, **in wilderness-type recreation.** This evidence suggests that **wilderness values tend to be developed early in life and continue to be reinforced through social behavior later in life.**

Lucas (1964a), in his study of visitors to the Boundary Waters Canoe Area, found 38 groups containing persons who had come to that area in their youth as campers at one of the nearby organizations of private camps, and that two-thirds of these groups were paddling canoeists. All of the camps stress paddling canoe trips. The fact that two-thirds of these persons returned to the area for the same type of experience is an example of the strength of early learned values concerning wilderness. The ORRRC study (1962) found that the greater the social reinforcement through family and friends, the greater the commitment to wilderness use. The strong socialization of wilderness values may explain the intense involvement of wilderness users in preservation issues concerning such areas and their tendency to affiliate themselves with organized groups dedicated to common goals.

The data from our study take on added meaning when compared with recent findings of Burch and Wenger (1967). They found that persons who did not begin to enjoy the out of doors before they were 19 were most likely to be easy-access campers rather than remote or combination (remote and easy access) campers. Persons in their sample with childhood hiking experience were more likely to be remote or combination (remote and easy access) campers rather than exclusively easy access campers. They concluded from this and other evidence that recreationists tend to continue in the patterns learned in childhood. Our data clearly confirm this trend.

In summary, most wilderness use is by small family groups who are more likely to have children than the censused population. Nearly 70 percent of all visitors took their first wilderness trip before they were 15 years old; other studies suggest that **recreation patterns of adults are clearly linked with childhood experiences.** These findings combine to suggest, perhaps more clearly than any other, that **increases in wilderness visitation will continue as current wilderness users cultivate another generation with primitive camping tastes.**

The most common method of wilderness travel in the Pacific Northwest is by foot. Here, travelers nurse blisters from a day's hike in the Glacier Peak Wilderness.

Membership in Conservationist Groups and Outdoor Clubs

When respondents were asked if they belonged to any conservationist organizations or outdoor clubs, **30 percent reported that they belonged to at least one.** One of the interesting results was the wide variety of organizations that were perceived by respondents to fall under the heading of conservationist organizations or outdoor clubs. Membership in **80 different groups was reported under the heading of "conservationist organizations," and membership in 154 different groups was reported under "outdoor clubs."** Many groups were reported under both headings, but, amazingly, **218 different groups were mentioned by the 408 persons who were members.**

Table 5 gives the percentage of respondents reporting membership in conservationist organizations and outdoor clubs for each of the three areas studied. Readers should be aware that the percentage of all wilderness users who belong to such groups is probably less than reflected in table 5. Members of conservation groups were, no doubt, more likely to respond to the questionnaire than were nonmembers and were possibly overrepresented in the trail registrations to which questionnaires were sent.

Two other studies have reported somewhat higher percentages of wilderness-user membership in conservation groups. In the ORRRC (1962) study of visitors to the High Sierra Wilderness during 1960, 35 percent of the persons interviewed reported membership in "outdoor clubs or conservation organizations." In Merriam and Ammons' (1967) study of Montana wilderness users, 28 of the 77 persons (36 percent) interviewed in the Bob Marshall Wilderness and the Mission Mountains Primitive Area belonged to what they classified as fish, game, and wildlife groups or to four specific groups that we would classify as conservationist organizations.

Table 6 indicates the 13 most frequently mentioned groups, number of times membership in each was reported under the heading of conservationist organization," number of times reported under the heading of "outdoor club," and total number of wilderness visitors reporting membership in a group, irrespective of the heading under which it appeared. The latter figure is adjusted downward to account for the number of times identical respondents reported membership in the group under both "conservationist organization" and "outdoor club" headings.

Table 6 indicates that the nationally known groups were more frequently mentioned than regional or local groups. In fact,

Table 5. – Wilderness-user membership in conservationist organizations and outdoor clubs, by wilderness areas[1]

Areas where respondents were recorded	Membership in conservationist organization	Membership in outdoor club	Membership in either conservationist organization or outdoor club
	Percent		
Eagle Cap Wilderness	13.7	20.6	25.3
Three Sisters Wilderness	19.3	25.7	32.3
Glacier Peak Wilderness	17.6	29.0	31.8
All three areas	17.2	25.6	30.3

[1] *Total number of respondents = 1,348.*

about 40 percent of the members (almost 12 percent of our respondents) belonged to the national groups logically perceived as conservationist organizations (Sierra Club, Wilderness Society, Natl. Wildlife Federation, Izaak Walton League, National Parks and Recreation Association, Audubon Society). However, membership in all of these national groups combined made up less than one-quarter of all memberships reported since many respondents belonged to more than one group. Members of regional groups were recorded most in the area closest to their headquarters; i.e., Mountaineers and North Cascade Conservation Council members were found in the Glacier Peak Wilderness, Mazamas in the Three Sisters Wilderness, etc.

The fact that membership in conservation groups was concentrated among smaller regional and local activity-oriented groups rather than larger politically powerful national groups may be significant. It is

Table 6, – Wilderness-user membership in the most frequently mentioned groups reported as conservationist organizations or outdoor clubs

Name of group	Member of conservationist organization	Member of outdoor club	Member of either conservationist group or outdoor club
	Number	*Number*	*Number*
Mountaineers	18	54	57
Sierra Club	40	42	49
Boy Scouts of America	17	43	42
Wilderness Society	37	4	39
North Cascades Conservation Council	36	2	34
Mazamas	13	34	33
National Wildlife Federation	32	1	30
Federation of Western Outdoor Clubs	21	9	24
Izaak Walton League	11	8	16
National Rifle Association	5	13	15
Obsidians	1	13	12
National Parks and Recreation Association	11	0	11
Audubon Society	11	4	11
295 other groups	107	237	309
Total memberships	253	464	682

[1] *Based on 408 respondents who reported belonging to such groups out of sample of 1,348 wilderness users.*

unlikely that membership in the national groups occurs spontaneously. Such memberships may stem from a steppingstone type of process, whereby persons first join an activity-oriented local group, learn the appropriate values, and subsequently expand their involvement in the conservation movement by joining one of the larger national organizations. If such a steppingstone proposition is plausible, then membership in the larger groups is likely to expand greatly in the future, since the smaller activity-oriented groups now encompass a majority of the persons affiliated with organized groups. This topic deserves serious study considering its implications for wild-land management.

Further analysis of the data indicated that predominantly urban bred residents belong to "conservationist organizations" or "outdoor clubs." Compared with other wilderness users, members also make more wilderness visits and longer visits. They are more likely to visit wilderness with organized groups than are nonmembers and are also more likely to have close friends who are wilderness users. They are also slightly better educated. They were also found to have a more wilderness-purist orientation toward wild-land recreation than nonmembers.

Average Number of Trips and Average Length of Trips

Table 7 indicates the average number of trips into remote back country of wilderness character and the average length of stay during 1965 by respondents recorded in each of the three areas.

The average respondent participated in wilderness-type recreation about 6.3 times in 1965 for approximately 2.3 days each trip, accounting for an average of 14.5 man-days of use per respondent. This is a considerable amount of time to spend on such an activity, particularly since almost all of it must be spent during the summer months. The wilderness-use figures may be affected somewhat by nonresponse bias, since we might logically assume that the 70 percent of the persons who responded are the most frequent and dedicated users. The figures might also be subject to a prestige bias, since these users are normally anxious to credit themselves with experience. However, even if one assumes some bias, it is clear that wilderness use in the Pacific Northwest takes place in several short trips rather than one or two long trips. In addition, if we assume that respondents are more frequently visitors to the specific areas in which they were sampled, the Glacier Peak and Three Sisters Wilderness areas, respectively, seem to be used for more numerous short trips than does the more isolated Eagle Cap Wilderness.

The pattern of short frequent trips revealed in our study is also supported by other studies. We have already mentioned that almost 80 percent of the visitors to the Three Sisters Wilderness in 1962 were found to hike in and out of the area the same day (Wenger 1964b). A recent questionnaire study of wilderness users and car campers sampled in two

Table 7. – Average number of trips into wilderness-type areas in 1965 and length of stay by respondents from three areas

Area where respondents were recorded	Average number of trips	Average length of trips	Number of respondents
		Days	
Eagle Cap Wilderness	5.2	3.0	343
Three Sisters Wilderness	6.2	2.2	504
Glacier Peak Wilderness	7.1	2.2	485
All three areas	6.3	2.3	1,332

National Parks and three National Forests in Washington State revealed that the 1,300 respondents stating a preference for wilderness-type recreation averaged 4.8 trips for 2.3 days per trip in such areas during 1966 (see footnote 6, p. 10). It would be dangerous to generalize these findings to other areas of the country, but on the basis of these three studies, **wilderness visits in the Pacific Northwest appear to be more frequent and of less duration than previously anticipated.**

Merriam and Ammons (1967) found a somewhat different pattern in interviews with 108 visitors to the Bob Marshall Wilderness, the Mission Mountain Primitive Area, and back country in Glacier National Park. Visitors to the Bob Marshall stayed an average of 8 days, those to the Mission Mountain Primitive Area and Glacier National Park 2 days and 4 days, respectively. No data were cited concerning the number of trips. They attributed differences in the length of stay to variation in the size and accessibility of the areas.

Stone and Taves (1956) found the mean, median, and modal length of trips in the Boundary Waters Canoe Area to be 6½ days in an informal study of 21 camping parties. Several years later, in a much more systematic study of the Boundary Waters Canoe Area, Lucas (1964a) found the average length of stay to be about 1.75 days, compared with an estimate of 5.0 days by Forest Service officials.

Studies such as we have cited provide wilderness-use information at one moment in time for only a few areas. Such data may help managers make better estimates where there are no provisions for measuring use. Proof of this are wide discrepancies that have been found between estimates of use based on study samples and previous intuitive estimates of wilderness managers. Decisions involving the protection, management, and even the allocation of wilderness-type areas depend on accurate estimates of use, and the previously relied upon intuitive methods are no longer adequate. We urge resource managers to conscientiously utilize some type of system to measure use, such as self-registration stations, for all wilderness-type areas. The information is basic to management of the wilderness recreation resource just as scaling logs is to the management of the timber resource.

A Summary of Wilderness-User Characteristics and Their Implications

The foregoing information on the demographic characteristics of wilderness users indicates that they tend to be young to middle-aged adults and highly educated, with more than 60 percent coming from less than the top 10 percent of the U. S. population in terms of educational attainment. Three-fourths of them were married and most of these had children. About one-half of all wilderness use appears to be by small family groups and much of the remainder by small clusters of friends. Wilderness use appears to be about equally common among persons raised in cities, small towns, or rural areas, but the most wilderness-purist respondents were more likely to have been raised in urban settings than in rural areas. More than 65 percent of our respondents reported taking their first wilderness trip before they were 15 years old. Nearly half of our sample reported that three or more of their five closest friends were also wilderness users. This clearly suggests that wilderness values are developed early in life and continue to be reinforced through social behavior later in life.

Thirty percent of our respondents reported belonging to at least one conservationist organization or outdoor club and, amazingly, membership in 218 different groups was reported. Despite the fact that about 40 percent of the members belonged to conservationist organizations national in scope, membership in these groups made up only about one-quarter of all memberships reported since it was common for persons to belong to more than one group. **Wilderness users belonging to organized groups were more likely to be urban bred, to make more wilderness visits and longer visits, to be better educated, and to have a more wilderness-purist point of view.**

The average respondent participated in wilderness type recreation about 6.3 times in 1965 for approximately 2.3 days each trip. This and evidence from other studies clearly indicate that **wilderness use in the Pacific Northwest is characterized by several short trips rather than one or two long trips per year.**

These findings suggest that **wilderness visitation will continue to increase** because: (1) wilderness users typically have those characteristics becoming more common in our society; (2) users tend to be married, with children; (3) wilderness visitation is a continuation of patterns learned in childhood; e.g., nearly 70 percent took their first wilderness trip before they were 15 years old. We should emphasize that the anticipated increase will be a continuation of recent trends and a realization of former projections rather than a new development (Lucas 1966a, The North Cascades Study Team 1965, ORRRC 1962). The problem is one of accommodating increased use on limited resources while preventing declines in quality from overuse. This will be a challenging task for wilderness managers.

Part II

Differentiating Wilderness Users By Their Attitudes

The demographic characteristics of users identified in the foregoing section are important because they enable us to better predict future wilderness use. They also allow us to infer certain visitor expectations based on the characteristics of these persons. But there is another more subtle characteristic of such users that is even more vital in explaining their behavior and expectations; that is, the shared value system governing their attitudes and motivation to visit wilderness. If recreation users can be differentiated as to the degree they possess wilderness-oriented values, as well as by their characteristics, then the possibility of predicting reactions to management policies and inferring tastes and preferences is greatly enhanced. For this reason, we attempted to measure the wilderness-purist tendencies of the respondents in this study by using an attitude scale.

Using the scaling technique subsequently described, we were able to identify a hierarchy of wilderness users ranging from wilderness-purists to those more urban or convenience oriented. In developing such a classification of users, we had a very practical purpose in mind. We wanted to be able to correlate a person's wilderness-purist tendencies with his reactions to the suggested management policies and behavior norms that were included in the questionnaire. We also wanted to find out to what degree some of the demographic characteristics of users were actually related to wilderness-oriented attitudes and to try to get some better insights into the value system underlying wilderness use.

Our development of a classification of wilderness users is unique only in the sense that we specifically designed an attitude scale with which to build our hierarchy. Several researchers have used their results, and sometimes their intuition, to infer categories of wilderness users which they felt to hold certain values in common. The work of these persons will be reviewed, but only after presenting our method and its results so that meaningful comparisons can be made.

Development of a Wildernism-Urbanism Testing Instrument

Through discussion and pretesting, we devised a set of 60 short questions relating to wild-land recreation values that might be held more intensely by persons with wilderness-purist tendencies than by persons who, although they visited wilderness, held less extreme concepts of such values or held different values. The questions suggested **20 hypothetical liked or disliked features of wilderness-type areas, 20 activities deemed appropriate or inappropriate to wilderness-type areas, and 20 benefits that might or might not be obtained from recreation in remote back country of wilderness character.**

It was necessary to use the cumbersome phrase, "remote back country of wilderness character," throughout the questionnaire to avoid implying that the researchers in any way contemplated nonconforming uses of legally designated wilderness areas. In this report, the term "wilderness-type area" is used interchangeably with "remote back-country recreational area," "remote back country of wilderness character," etc. The necessity of using such a phrase was unfortunate in that some misunderstanding or bias may have resulted.

The items called for response on a 9-point scale, ranging from "strongly dislike" (-4) to "strongly favor" (+4). To simplify computations, these numerical responses were later translated so that they ranged from +1 to +9. The questionnaire items were selected so that those persons with the most extreme wilderness-purist concepts would respond extremely positively or extremely negatively, depending on the item. Conversely, those persons with extreme urban- or convenience-oriented concepts would respond at the opposite end of the scale for each item. The responses could then be cumulatively scored, the total score indicating the relative degree to which respondents were wilderness-purist or urban oriented. We designated those persons with wilderness-purist tendencies as "wildernists" (a contraction of the term "wilderness-purist") and urban- or convenience-oriented respondents as "urbanists." These contractions led us to refer to our attitude scale as the wildernism-urbanism scale because of the polar extremes of the attitude continuum being measured. Henceforth in this report, **when we refer to the "more wildernist respondents," we mean those who were more wilderness-purist because they had high wildernism scores.**

Although there were 60 items in the questionnaire that suggested features, activities, and potential benefits to be derived from wilderness use, we found, of course, that some of the items were far more effective in differentiating wildernists from urbanists. We related responses to each item to the cumulatively scored responses for all of the items using a statistical measure of association called gamma.[7]

Gamma might be compared, for simplicity's sake, to a squared correlation coefficient. It varies between -1.0 and +1.0 and indicates the proportional reduction in error one could achieve in predicting rank order variation in wildernism scores from knowledge of response to one scale item over the errors one would make in trying to predict total scores without knowledge of response to that item (Goodman and Kruskal 1954, Costner 1965). We eliminated all items which achieved a gamma statistic of less than ± 0.50 and thus reduced our wildernism testing instrument from 60 to 30 items. Listed below are the 30 items in our shortened and improved scale and the gamma statistics indicating their degree of association with scores compiled from the original 60 wildernism items. They are arranged in order from the highest positive gamma to the lowest negative gamma which indicates the relative degree of acceptance or rejection of the items.[8]

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[7] *We used "gamma statistics" rather than the more complex "item analysis" because of limitations in the computer program and the fact that gamma indicates the degree to which prediction errors can be reduced by virtue of the association between the two variables being considered; i.e., responses to individual items and total scores (Costner 1965).*

[8] *Readers, wishing to score themselves on the wildernism scale, should assign the numbers 1, 2, 3. . . 9 to -4, -3, -2 . . . +4, respectively, for the positively correlated items and assign the numbers 9, 8, 7 . . . 1 to -4, -3, -2 . . . +4, respectively, for the negatively correlated items. Add the assigned numbers for all of the appropriately marked responses, divide by 30 or the number answered, and multiply by 10 to determine the total wildernism score. Refer to table 8 to see how the score compared with respondents sampled in this study.*

Wildernism-Urbanism Attitude Test

For each item in the following list of possible features, activities or benefits associated with wilderness-type recreation, circle one number that best expresses your attitude – how positive or how negative you feel toward having that feature, participating in that activity or receiving that alleged benefit from such experience.

Gamma statistic	Questionnaire item	Strongly dislike			Neutral			Strongly favor		
.75	Camping (backpacking)	-4	-3	-2	-1	0	1	2	3	4
.68	Tranquility	-4	-3	-2	-1	0	1	2	3	4
.68	Sleeping outdoors	-4	-3	-2	-1	0	1	2	3	4
.68	Hiking	-4	-3	-2	-1	0	1	2	3	4
.67	Solitude	-4	-3	-2	-1	0	1	2	3	4
.65	Enjoyment of nature	-4	-3	-2	-1	0	1	2	3	4
.65	Awareness of beauty	-4	-3	-2	-1	0	1	2	3	4
.64	Alpine meadows	-4	-3	-2	-1	0	1	2	3	4
.63	Absence of manmade features	-4	-3	-2	-1	0	1	2	3	4
.64	Drinking mountain water	-4	-3	-2	-1	0	1	2	3	4
.60	Virgin forest	-4	-3	-2	-1	0	1	2	3	4
.56	Lakes (natural)	-4	-3	-2	-1	0	1	2	3	4
.56	Timberline vegetation	-4	-3	-2	-1	0	1	2	3	4
.56	Vast area and enormous vistas	-4	-3	-2	-1	0	1	2	3	4
.54	Physical exercise	-4	-3	-2	-1	0	1	2	3	4
.53	Rugged topography	-4	-3	-2	-1	0	1	2	3	4
.53	Native wild animals	-4	-3	-2	-1	0	1	2	3	4
.53	Looking at scenery	-4	-3	-2	-1	0	1	2	3	4
.52	Emotional satisfaction	-4	-3	-2	-1	0	1	2	3	4
-.54	Cutting Christmas tree	-4	-3	-2	-1	0	1	2	3	4
-.58	Camps for organizations	-4	-3	-2	-1	0	1	2	3	4
-.59	Gravel roads	-4	-3	-2	-1	0	1	2	3	4
-.66	Private cottages	-4	-3	-2	-1	0	1	2	3	4
-.66	Purchasing souvenirs	-4	-3	-2	-1	0	1	2	3	4
-.66	Camping (with car)	-4	-3	-2	-1	0	1	2	3	4
-.69	Equipped bathing beaches	-4	-3	-2	-1	0	1	2	3	4
-.69	Automobile touring	-4	-3	-2	-1	0	1	2	3	4
-.71	Powerboating	-4	-3	-2	-1	0	1	2	3	4
-.71	Campsites with plumbing	-4	-3	-2	-1	0	1	2	3	4
-.71	Developed resort facilities	-4	-3	-2	-1	0	1	2	3	4

The foregoing 30 items were used to calculate the wildernism scores used in this publication. The 30 questionnaire items that were not as strongly associated with total scores (those achieving gamma statistics of less than ±.50) are tabulated below.

Questionnaire Items From the Wildernism-Urbanism Scale Which Were Dropped Because They Did Not Contribute Enough to Total Scores (Gamma Statistics Less Than ±.50)

Wilderness features	Strongly dislike				Neutral			Strongly favor	
Unchanged natural coastlines	-4	-3	-2	-1	0	1	2	3	4
Reservoirs (manmade)	-4	-3	-2	-1	0	1	2	3	4
Waterfalls and rapids	-4	-3	-2	-1	0	1	2	3	4
Campsites with outhouses	-4	-3	-2	-1	0	1	2	3	4
Remoteness from cities	-4	-3	-2	-1	0	1	2	3	4
Absence of people	-4	-3	-2	-1	0	1	2	3	4
Canoeing	-4	-3	-2	-1	0	1	2	3	4
Picking wildflowers	-4	-3	-2	-1	0	1	2	3	4
Taking pictures	-4	-3	-2	-1	0	1	2	3	4
Mountain climbing	-4	-3	-2	-1	0	1	2	3	4
Hearing naturalist talks	-4	-3	-2	-1	0	1	2	3	4
Talking with tourists	-4	-3	-2	-1	0	1	2	3	4
Viewing naturalist exhibits	-4	-3	-2	-1	0	1	2	3	4
Breathing fresh air	-4	-3	-2	-1	0	1	2	3	4
Getting physically tired	-4	-3	-2	-1	0	1	2	3	4
Studying pioneer history	-4	-3	-2	-1	0	1	2	3	4
Low-cost outdoor recreation	-4	-3	-2	-1	0	1	2	3	4
Learn to lead simple life	-4	-3	-2	-1	0	1	2	3	4
Chance to acquire knowledge	-4	-3	-2	-1	0	1	2	3	4
Chance to stumble onto wealth	-4	-3	-2	-1	0	1	2	3	4
Adventure	-4	-3	-2	-1	0	1	2	3	4
Sense of personal importance	-4	-3	-2	-1	0	1	2	3	4
Improve physical health	-4	-3	-2	-1	0	1	2	3	4
Recapture pioneer spirit	-4	-3	-2	-1	0	1	2	3	4
Relieve tensions	-4	-3	-2	-1	0	1	2	3	4
Attain new perspectives	-4	-3	-2	-1	0	1	2	3	4
Chance to boast	-4	-3	-2	-1	0	1	2	3	4
Sense of humility	-4	-3	-2	-1	0	1	2	3	4
Family solidarity	-4	-3	-2	-1	0	1	2	3	4
Chance for noble thoughts	-4	-3	-2	-1	0	1	2	3	4

Results of the Wildernism-Urbanism Attitude Test

Table 8 indicates the distribution of wildernism scores. As expected, most of the scores are grouped near the top of the scale, indicating that almost all respondents were somewhat "wildernist." Few outright urbanists were found. Since all of the respondents were actual wilderness users, to some extent, they all shared attitudes oriented toward wilderness-purist concepts. In another study, we used the wildernism scale (with minor modifications) on a large population of National Forest and National Park car campers and wilderness users and found that car campers were less wildernist than were wilderness users (footnote 6, p. 10). This implies a certain degree of external validity for the scale.

To further test the external validity of the scale, we administered the test to members of two conservation groups; the Friends of the Three Sisters Wilderness, July 1966, at Quaking Aspen Swamp in the central Oregon Cascades during their annual trek and the Wilderness Society, August 1966, during an extended trail ride in the North Cascades of Washington State. The scale was also administered to an introductory sociology class at the University of Washington on November 8, 1967. The distributions of wildernism scores from these groups are also given in table 8. They indicate, in general, that persons who might be expected to be wilderness-purist were indeed scored that way by our wildernism measuring instrument. Likewise, those persons from the sociology class and, in particular, those who had not visited wilderness during the past 2 years tended to be scored as more urbanist or neutral.[9]

Table 8. – Distribution of wildernism scores of visitors to three different wilderness areas, members of two conservation groups, and a sociology class

Item	Wildernism scores and assigned categories					
	Urbanists, 10-54	Neutralists, 55-64	Weak wildernists, 65-74	Moderate wildernists, 75-84	Strong wildernists, 85-90	Total
	Percent					*Number*
Eagle Cap Wilderness	1.5	9.8	34.6	34.3	19.8	338
Glacier Peak Wilderness	.6	6.0	27.3	41.3	24.8	487
Three Sisters Wilderness	.2	8.8	33.1	37.6	20.3	498
All three	.7	7.9	31.4	38.1	21.9	1,323
Friends of the Three Sisters (conservation group)	—	—	8.3	50.0	41.7	12
Wilderness Society (conservation group)	—	—	5.3	42.1	52.6	19
Introductory sociology class, University of Washington	8.0	46.0	38.0	8.0	—	50
Persons in class who had not visited wilderness during last 2 years	7.1	92.9	—	—	—	14

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[9] *Five of the sociology students had not visited wilderness during the past 10 years but had gone car camping, but only two of them had not visited wilderness or gone car camping during the last 10 years.*

Characteristics of Wilderness-Purists

When we related the wildernism attitude scores to the background characteristics of the respondents, we found the following trends. **The more wilderness-purist (wildernist) users were more likely to have been raised in urban areas, were highly educated, had more close friends who also participated in wilderness-type recreation, and were more likely to belong to one or more conservationist organizations or outdoor clubs.** As table 8 indicates, those persons with little or no wilderness experience had lower wildernism scores, but when we related total wilderness experience during the past 2 years to each respondent's score, we found the relationship to be more subtle. Some wilderness experience appeared necessary to attain a wildernism score near the median; but those respondents with the most experience were not always the most wildernist. As indicated in subsequent sections of this report, wildernism scores and reactions to suggested behavior norms and management policies were frequently related. Not surprisingly, the more wildernist respondents opposed behavior and policies violating the complete naturalness of wilderness more than did the average respondent.

Patterns of Response to the Wildernism Items

We developed the wildernism scale to differentiate between the reactions of users to suggested wilderness management policies and behavior norms on the basis of their measured wilderness-purist tendencies. We wanted to identify the degree to which the more wildernist respondents differed in their preferences from those persons who were not so wilderness-purist or maybe even urban oriented in their outlook. This information is important to help qualify and interpret what might otherwise appear to be merely a problem of consensus or popular vote on subsequent items concerning how wilderness should be managed or how people should behave in such settings. However, the patterns of response to the 60 wildernism items may also reveal basic information concerning motivation to use wilderness, certainly some useful data on the attitude dimensions measured by the scale, and more detail on how the more wilderness-purist users differ from others. Following are the results of a factor analysis we conducted to identify clusters of items about which most of the wilderness users felt the same. These clusters of items indicate several different attitude dimensions apparently measured by the wildernism scale.

We classified our respondents according to their wilderness-purist tendencies, using an attitude scale. The purists were more likely than other users to have been raised in urban areas, to have higher educations, and to belong to conservation groups or outdoor clubs. Here, a wilderness visitor views (left to right) Plummer Peak and Fortress Mountain from Miners Ridge in the Glacier Peak Wilderness.

Ten mathematically independent factors were extracted in a factor analysis computer routine. By rotating these to simple structure, we were able to identify seven clearly interpretable clusters of items about which the wilderness users had similar feelings. The factors were exceptionally clear cut in that the combination of items they included suggested logical, implicit meaning. The individual items had high factor loadings and the factors were quite strong, as indicated by their relatively high eigenvalues.[10]

We labeled each of the strongest seven factors with a term expressing what we felt to be the underlying meaning implicit in that group of items. The factors are given in the following tabulations with the names we assigned to them, the items included in each cluster with their appropriate factor loadings, and our interpretation of the underlying meaning implicit in the group of items making up each factor.[11] They are presented in order of their relative strength as indicated by the eigenvalues calculated for each factor. Each factor is designated as positive or negative, depending on the direction in which the more wilderness-purist persons tended to respond. The cutoff points of the factor loadings, determining which items would be included, were selected for each cluster of items where the factor loadings appeared to drop abruptly.

Factor I. Spartanism – eigenvalue 7.35
(Positive response by wilderness-purists)

	Factor loading
Improve physical health	0.65
Adventure	.59
Recapture pioneer spirit	.58
Physical exercise	.55
Chance to acquire knowledge	.55
Learn to lead simple life	.51
Relieve tensions	.43
Attain new perspectives	.42
Breathing fresh air	.42
Emotional satisfaction	.40
Getting physically tired	.39

Spartanism was the strongest factor in that it had the highest eigenvalue, indicating that it contained items with the most consistent pattern of similar response. We designated it "Spartanism" because respondents who strongly endorsed items such as "improve physical health," "adventure," "recapture pioneer spirit," "physical exercise," and "learn to lead simple life" seem to be endorsing a Spartan way of life and an ethic of able-bodiedness, fortitude, and dauntlessness. One should note, however, that some of the items in the cluster also suggest rejuvenation-oriented values such as "relieve tensions," "emotional satisfaction," and "attain new perspectives." **The implication is that the strongest dimension of shared feelings among wilderness users in our study centered around the emotionally refreshing Spartan-like type of existence implicit in wilderness use.**

Factor II. Antiartifactualism – eigenvalue 3.39
(Negative response by wilderness-purists)

	Factor loading
Campsites with plumbing	0.80
Equipped bathing beaches	.78
Developed resort facilities	.74
Gravel roads	.70
Camping with car	.70
Automobile touring	.70
Camps for organizations	.68
Private cottages	.65
Powerboating	.60
Reservoirs (manmade)	.59
Campsites with outhouses	.57
Purchasing souvenirs	.45
Cutting Christmas trees	.41
Viewing naturalist exhibits	.40

This factor was second only to Spartanism in terms of consistently shared response. Respondents who strongly endorsed these items seem to be favoring human "improvements" and the installation of, or provision for, facilities and artifacts to provide for creature comforts and stimulation. The more wildernist users obviously rejected the presence of such facilities and artifacts. **The implication is that wilderness use is strongly based on a rejection of man's permanent presence in the natural environment.**

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[10] *The magnitude of the factor eigenvalues indicates the relative strength of the groups of items in terms of the variance accounted for by clustering. Although several of the factors appear to be conceptually related, they are mathematically independent in an orthogonal factor analysis (Horst 1965).*

[11] *The factor loadings should be viewed as intercorrelation coefficients expressing the relationship between response to each of the items and the other items in the cluster.*

Factor III. Primevalism – eigenvalue 3.05
(Positive response by wilderness-purists)

	Factor loading
Waterfalls and rapids	0.70
Alpine meadows	.61
Timberline vegetation	.60
Lakes (natural)	.58
Virgin forest	.56
Rugged topography	.54
Unchanged natural coastlines	.50
Native wild animals	.47
Vast area and enormous vistas	.44

The general implication of primevalism factor is that **strongly motivated wilderness users seem devoted to satisfactions obtained from perceiving the undisturbed natural environment.** Persons who strongly reject such items seem to be repelled by, or at least not attracted to, primeval scenes. This cluster of items has some conceptual resemblance to factor II, antiartifactualism, in that a rejection of man's dominance over nature is implicit in a preference for primeval scenes.

Factor IV. Humility – eigenvalue 2.23
(Negative response by wilderness-purists)

	Factor loading
Chance to boast	0.66
Sense of personal importance	.56
Chance to stumble onto wealth	.54
Picking wild flowers	.47
Cutting Christmas trees	.40

The more wilderness-purist users rejected the items in this factor which implies (as did the antiartifactualism and primevalism factors) a desire for humility in man's relation to the natural environment. On the contrary, urbanist respondents showed a greater tendency to endorse such items which seems to express a wish to assert their personal dominance over the natural environment.

Factor V. Outdoorsmanship – eigenvalue 2.07
(Positive response by wilderness-purists)

	Factor loading
Camping (backpacking)	0.64
Hiking	.63
Mountain climbing	.63
Canoeing	.57
Sleeping outdoors	.44

This group of items suggests that **certain craft aspects of wilderness visits and life in the natural environment are valued by users in addition to the endurance or Spartan-like aspects which have been asserted in previous factors.** The more urban-oriented persons who rejected these items evidently regard these activities as onerous and are not as strongly attracted to wilderness use.

Factor VI. Aversion to social interaction – eigenvalue 1.92
(Negative response by wilderness-purists)

	Factor loading
Hearing naturalist talks	0.78
Viewing naturalist exhibits	.74
Studying pioneer history	.61
Talking with tourists	.52

The more wildernist respondents rejected these items, which suggests that they are averse to deliberate information-exchange embellishments of outdoor recreation. This aversion appears to be a dimension of wildernism, though most wilderness-purists are informed persons and learning does occur in conjunction with wilderness recreation. **We strongly suspect that the suggested techniques of information exchange (hearing, viewing, talking), all of which involve impersonal social interaction and perhaps developed facilities, are behind the rejection of these items.**

Factor VII. Escapism – eigenvalue 1.66
(Positive response by wilderness-purists)

	Factor loading
Absence of people	0.78
Remoteness from cities	.60
Absence of manmade features	.55
Solitude	.48
Vast areas and enormous vistas	.44
Tranquility	.39

Table 9. – Number of items falling into each factor of wildernism in the shortened scale compared with total number of items clustered in each factor from the original 60 items and their rank

Factor	Number of items in improved scale	Number of items in original scale	Ratio	Rank order of importance in improved scale
I. Spartanism	2	11	0.18	6
II. Antiartifactualism	10	14	.71	1
III. Primevalism	6	9	.67	2
IV. Humility	1	5	.20	7
V. Outdoorsmanship	3	5	.60	5
VI. Aversion to social interaction	0	4	.00	8
VII. Escapism	4	6	.67	3.5
Items not appearing in any factor	4	6	.67	3.5
Totals	30	60	—	—

The more wilderness-purist respondents endorsed these items, implying that they are averse to involvement with modern, impersonal, human aggregations or evidence thereof. This is not to suggest that wilderness users are actively antisocial. We interpret these items as merely a desire to seek temporary respite from human involvement, with values being placed on benefits from such experience. The fact that most wilderness use is by family or friendship groups suggests that **this factor reflects an aversion only to the kind of depersonalized human encounters so common to modern life.** Social interaction with intimates such as family or close friends is, in fact, reinforced by wilderness recreation, according to other evidence appearing in our study.

It is interesting to note that escapism is the seventh factor extracted. It has a lower eigenvalue and accounted for less variance than did the six other clusters of items in the wildernism scale. Escape from civilization has long been cited by observers as a dominant reason for wilderness use. Our data do not refute this but indicate that there are six factors or clusters of items in our attitude scale about which wilderness users more consistently had similar feelings. The escape from civilization theme is also implicit in Spartanism, antiartifactualism, and primevalism – the three strongest factors in the wildernism scale – suggesting that **the escape from civilization theme underlies many aspects of wilderness appeal but, by itself, is overshadowed.**

Dimensions of the Wildernism Scale That Best Differentiate Wilderness-Purists From Urbanists

The factor analysis reported above included all 60 of the wildernism items in the questionnaire. When we shortened the scale to include only the 30 items best differentiating wilderness-purists from urbanists, we found that the items included did not equally represent all of the factors described. Some of the clusters of items or dimensions of the wildernism scale we identified in the factor analysis were underrepresented and others were overrepresented in the new scale. The new scale contains only the 30 items most highly correlated with wildernism scores. Thus, **the factors or clusters of items prominent in the improved scale logically represent the dimensions of wildernism which most efficiently differentiate wilderness-purists from urbanists.**

Table 9 compares the number of items in the improved scale which fell into each factor with the total number of items clustered in that factor during analysis of the original 60 items.

Table 9 indicates that 20 of the 30 items in the improved scale are grouped, respectively, under antiartifactualism, primevalism, and escapism. **This suggests wildernists are best differentiated from urbanists in terms of their more positive affinity for natural environments devoid of human influence.** This is generally consistent with the ORRRC (1962) finding that "exit civilization" and "esthetic-religious" dimensions predominate in the appeal of wilderness.

Specifically, the more wilderness-purist respondents express more zeal than urbanists for tranquility, solitude, alpine meadows, absence of manmade features, virgin forest, lakes (natural), timberline vegetation, vast areas and enormous vistas, rugged topography, and native wild animals. They are more averse than urbanists to camps for organizations, gravel roads, private cottages, purchasing souvenirs, camping (with car), equipped bathing beaches, automobile touring, powerboating, campsites with plumbing, and developed resort facilities. Moreover, these more wildernist respondents appear more willing to adapt themselves to natural environment conditions, as indicated by their greater endorsement of three items from the outdoorsmanship factor that appear in the refined scale: camping (backpacking), sleeping outdoors, and hiking.

The Spartanism factor, despite its dominant rating in the analysis of all 60 items, contributed only two items to the refined scale (physical exercise and emotional satisfaction). The humility factor contributed only one (dislike for Christmas tree cutting).

The factor, aversion to social interaction, contributed no items to the abbreviated scale, indicating that this dimension of wildernism is not very important in differentiating wildernists from urbanists.

It is important to keep in mind that we are considering here only those items and their appropriate factors which best differentiate between the more wilderness-purist and other users. The items about which all wilderness users felt the same did not differentiate and were thus excluded from the refined scale.

Other Research Classifying Wilderness Users

As we mentioned earlier, our study is not the first attempt by researchers to categorize wilderness users on the basis of the intensity with which they hold certain values. It is the first attempt that we are aware of to use attitude scaling techniques in approaching the problem.

The ORRRC (1962, page 135) study of wilderness users included an analysis of the inveterate wilderness user, using frequency of use as a "rough and admittedly partial measure of commitment." In their analysis, they tested a number of propositions and found that wilderness commitment, as measured by frequency of use, is greater among males, among those introduced to camping early in their youth, and among those whose interest in wilderness is reinforced by family and friends. Age was related to wilderness commitment only among older users, there was no consistent relationship between income and frequency of use, and those raised in urban areas were more likely to be committed users than those raised in rural areas.

In many respects, the inveterate wilderness user identified in the ORRRC study approximates the strong wilderness-purist identified by our wildernism attitude scale. However, amount of use does not explain much variation in wildernism scores except between nonusers and users. For example, among those who do visit wilderness, amount of wilderness experience does not indicate how wilderness-purist they are, as measured by the wildernism scale. Our data indicate that habitual or inveterate users are often no more wilderness-purist than those who visit such areas in moderation. This curvilinear relationship between wildernism scores and amount of use could be identified statistically and would prove interesting, but such an endeavor is beyond the scope of this study.

Another interesting comparison between the inveterate wilderness users identified in the ORRRC study and the wilderness-purists of our study is that both types were more likely to have been raised in urban areas. This is consistent with a recent study of visitors to National Park and National Forest wilderness and car camping areas in Washington, which also found urban-bred recreationists to be more wilderness-purist, more preservation oriented, and more inclined to differentiate the natural environment as a place with certain appropriate behavior than were those who were rural bred (see footnote 6, p. 10). The findings suggest that nature-oriented attitudes do thrive among those raised in urban set- and that continued urbanization of our society is likely to increase, not decrease, the preference of many for wilderness-type recreation. Burch and Wenger (1967) found, however, that although city dwellers were more likely to be forest campers, rural residents were more likely to be remote campers. This evidence conflicts somewhat with our findings and the two other studies.[12]

The tendency to identify hierarchies of users along a continuum ranging from wilderness-purist to urban oriented extends to virtually all researchers who have studied wilderness use. For example, Stone and Taves (1956) related previous camping experience to several items in an early study in the Boundary Waters Canoe Area and found that the more experienced users traveled in smaller parties and took longer trips. Bultena and Taves (1961) and Taves et al. (1960) found that canoeists in the Boundary Waters Canoe Area sought greater isolation, desired fewer improvements, and were more inclined toward preserving the area in a true wilderness state than were other campers. Lucas (1964b), in his study of visitors to the Boundary Waters Canoe Area, also found paddling canoeists to be more wilderness-purist in that they were attracted to the area more by its wilderness qualities, they perceived less area as real wilderness, considered the wilderness overcrowded at much lower levels, and distinguished more sharply between sorts of groups met than did motor canoeists, day users, auto campers, boat campers, resort guests, or private cabin users. Merriam and Ammons (1967), in their study of visitors to wilderness in three Montana areas, also describe a gradation in users' wilderness concepts, ranging from the mountaineer to the roadside camper whose wilderness travel is, at best, a day's hike in and out of the area.

In summary, **the insights of wilderness researchers inevitably suggest a continuum of users that, in general, approximate what we suggest is a wilderness-purist to urban-oriented range of attitudes.** However, except for the easily identified canoeists in the Boundary Waters Canoe Area, wilderness researchers have not yet methodically and directly related the implied gradations in types of users to visitor attitudes toward wilderness management policies. In this respect, our exploration into wilderness-user attitudes differs, for one of our chief purposes in developing a wildernism-urbanism scale was to discover relations between users' orientation toward perceived wilderness values and their views on how administrators might manage the resource.

Studies of the Appeals of Wilderness

Our factor analysis revealed seven dimensions of common feelings among wilderness users as measured by our wildernism attitude scale. These seven dimensions are similar to the appeals of wilderness identified by other researchers. One section of the ORRRC Study Report 3 (1962) explored the appeals of wilderness and proposed five dimensions of motivation for entering wilderness. These dimensions were called exit-civilization, esthetic-religious, health, sociability, and the pioneer spirit. The ORRRC tested the relative importance of these dimensions of wilderness appeal against user response to 21 suggested reasons for wanting to be in the wilderness. By appropriately classifying each of the 21 stated reasons under their five dimensions of wilderness appeal and tabulating the number of persons ranking each reason as very important, some conclusions were evident as to the relative importance of each dimension. The ORRRC concluded that the two strongest motivations to visit wilderness are a wish to escape from the routines and crowds of daily life (exit-civilization) and a desire to enjoy the beauties of nature (esthetic-religious). The dimensions of health and sociability proved less salient as wilderness appeals in that order, and the pioneer spirit ranked last as a major reason for taking wilderness trips. Maintaining health seemed more important than restoring it, and older users were the ones likely to link this with wilderness use. The sociability motif was more important to middle-age and middle-income respondents, and the pioneer spirit was reflected most by persons from small towns. It was significant that the results were similar for three widely divergent types of wilderness, Mount Marcy in the Adirondacks, the Boundary Waters Canoe Area in Minnesota, and the High Sierra Wilderness in California. From this, the ORRRC concluded that the appeal of wilderness is a generic one, modified only slightly by differences in wilderness areas themselves.

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[12] *See also: Burch, William R., Jr. Nature as symbol and expression in American social life: a sociological exploration. 1964. (Unpublished doctoral dissertation on file at Univ. Minn., Minneapolis.)*

The ORRRC study findings concerning the dimensions of wilderness appeal are related in some respects to the seven dimensions of wildernism that we identified by using factor analysis on responses to the items in our attitude scale. In making comparisons, however, one must remember that our factors were based on the similarity of response by wilderness users and that the ORRRC study dimensions of appeal were based on the rated importance of certain aspects of appeal to users. The exit-civilization motif might be compared to our escapism factor, as well as our antiartifactualism and Spartanism factors. Exit-civilization was the dominant appeal for wilderness in the ORRRC study, whereas Spartanism, antiartifactualism, and primevalism were foremost among the clusters of items in our study. The fact that escapism was the weakest cluster of items with common response in our study is puzzling at first glance. However, as we previously pointed out, the escape from civilization theme is implicit in our Spartanism, antiartifactualism, and primevalism factors, suggesting that the escapism motif underlies many aspects of wilderness appeal but by itself is overshadowed.

Our primevalism factor compares roughly with the esthetic-religious dimension and falls next in importance to the factors paralleling exit-civilization. Comparison of the factors we identified with the remaining three ORRRC dimensions of wilderness appeal becomes even more difficult at this point. One can only say that humility, outdoorsmanship, and aversion to social interaction are subordinate to other factors in terms of the common feelings of wilderness users, as were the rated importance of health and sociability as dimensions of wilderness appeal in the ORRRC study.

Bultena and Taves (1961) and Taves et al. (1960), in a study of visitors to the Boundary Waters Canoe Area, identified five primary images of the area which they interpreted as motives for visiting the wilderness. The classification they used had been developed earlier and used in a less formal study of wilderness users in the same area (Stone and Taves 1956). Their images included (1) wilderness as a locale for sport and play – a locale where one could engage in outdoor activities of a nature seldom pursued in their home communities; (2) wilderness as fascination – an opportunity to gain new experiences and realizations seldom found in the more artificial setting of the city; (3) wilderness as sanctuary – an opportunity to leave the impersonal, monotonous and otherwise "directed" mental and physical environment of the city; (4) wilderness as heritage – a chance to personally relive the glamorous experiences of fur traders, pioneers, and explorers; and (5) wilderness as personal gratification – a chance for emotional catharsis with a psychological culmination revitalizing them for return to the emotional pressures surrounding their everyday lives.[13] Their research indicated that "wilderness as fascination" was the most frequently held image of the area. In general, most users were drawn to the area by its primitiveness, naturalness, opportunity for adventure, and to escape from the cares associated with the directed environment of the workaday world. The authors observed that "in many respects, the users' initial image represents a temporary rejection of what is seen as the artificialities of the city. They envisage the Quetico-Superior as providing an opportunity to escape such artificiality . . . and to reduce life's complexities to what is basic and essential" (Bultena and Taves 1961, p. 169).

Lucas' (1964b) study of visitors to the Boundary Waters Canoe Area also suggested motives for wilderness use similar to the foregoing studies. He found that canoeists were most likely to be attracted by the wilderness qualities of the area and to classify these qualities as wild, uncommercialized, uncivilized, primitive, remote, quiet, peaceful, etc.

The significant point to be derived from review of these studies is that **study of wilderness users by different researchers working in different areas turns up recurring similar themes underlying wilderness use.** They suggest that **wilderness visits are motivated in large part as an escape from artificiality of contemporary environments into natural settings, untarnished by civilization, where the necessity for primitive means of existence yields various emotional benefits to the participant.**

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[13] *For a psychiatrist's discussion of this aspect, see McKinley (1963 and 1966).*

Part III

Wilderness-User Behavior and Attitudes Toward Management Policies

The data subsequently presented in this report concern the reactions of users to statements suggesting behavior for wilderness users and management policies for wilderness areas.

Qualification of the Survey Method

In reviewing the response to these statements concerning wilderness-user behavior and wilderness management, one should remember that none of us behave entirely as we say we would. There is a certain artificiality about questionnaire data in that behavior is not being observed or measured directly. Ask a hypothetical question and get a hypothetical answer is one way of expressing it. On the other hand, when questionnaire response patterns indicate that certain behavior is condemned or accepted by most users or that a certain management policy is accepted or rejected, we can generally assume that behavior surrounding the issue will tend to be more consistent with the expressed attitudes than inconsistent. People agreeing that "debris should be packed out of the wilderness" won't always do it, but the probability that they will is greater than if they said they didn't feel it should be packed out. More important, they will perhaps be more receptive to stimuli reinforcing the behavior they acknowledge as desirable.

We offer this explanation not in apology for our method but as encouragement to the reader to look beyond the surface expression of what users feel is desirable or undesirable to the underlying possibilities. **The following data indicate what wilderness is to the users through their reactions to behavior and management measures viewed as consistent or inconsistent with their concept of wilderness.** The data offer no black-and-white solutions and that is not their intent. But they do offer a basis for better insight into what the consequences of certain actions might be on the culturally derived concept of wilderness.

Informal Rules and Customs for Recreation in Wilderness-Type Areas

The questionnaire contained 22 normative statements suggesting informal rules and customs that might be observed when visiting wilderness-type areas. These statements called for response ranging from "strongly disagree" to "strongly agree" (SD = strongly disagree, D = disagree, N = neutral, A = agree, SA = strongly agree). For example, two statements that appeared in this section are:

One should camp wherever
he pleases in
remote back country SD D N A SA

Playing cards and reading
books are not appropriate
to back country
unless the weather is bad SD D N A SA

The 22 questionnaire statements referring to informal rules and customs for back-country use were factor analyzed to determine which statements clustered together with highly intercorrelated response patterns. We originally tried to group the statements, using our own insights as to which were related, but upon trying factor analysis, we found some relationships that were imperceptible to our casual observation, and the five factors identified appeared logically as well as statistically clustered. **They revealed, in other words, the statements about which wilderness users most nearly felt the same.** Five groups of such statements were identified and are presented in the following text. **They suggest the presence of norms among wilderness users, indicating an attitude of responsibility and equality, a rejection of external controls on behavior, withdrawal from symbols of civilization, support for some campsite maintenance behavior, and endorsement of certain campcraft skills.** In the following, each statement appears under its appropriate factor, with a statistical summary of the response it received, an interpretation of the response, and the "factor loading" indicating how strongly it was related to all statements in that group. One of the important designations to be noted following each statement is the "gamma statistic" which indicates the degree of association (correlation) between wildernism scores and response to the statement; i.e., a large gamma statistic (positive or negative) indicates relatively consistent response to that statement by the more wildernist (wilderness-purist) respondents.[14]

Factor I: A Wilderness Norm—Responsibility and Equality

This group of statements forms the strongest factor in that it accounted for the greatest reduction of response variance among the five factors identified. The five normative statements in this group appear to **imply a sense of equality among wilderness visitors and a sense of responsibility for maintaining the propriety of each other's behavior and for contributing to each other's welfare.** As one psychiatrist and ardent wilderness user has noted (McKinley 1963), "in the wilderness, competition and suspicion seem to fade . . . . Not competition, but cooperation is needed because of the forces of nature . . . "

It is interesting to note the overwhelming agreement among respondents to all of the statements and the relatively stronger endorsement of the more "wildernist" respondents. If we reflect on the escapism aspect of motivation previously discussed, yet observe the significant orientation of users toward interpersonal responsibility that is present in these statements, a new dimension of the "escape from civilization" aspect of wilderness use appears. Wilderness users, as a group, do not appear to reject social responsibilities despite their desire to escape to wilderness solitude where they can interact only with family or close friends.

Of more specific practical interest are the responses to the first three statements which indicate that: **Users feel obliged to say something to persons whose behavior in wilderness is improper.** They feel that **persons in trouble have first claim on the time and energy of everyone near.** They feel that **trash left by previous users should be removed by other users if possible.**

Factor I	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		--- Percent	-----------		
I-1. If you see a person in a back-country recreational area doing something he shouldn't do, you should say something to him about it.	.65	80.6	15.7	3.7	G.22 + Moderate N = 1322

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[14] *See page 71 of the Appendix for an explanation of the use of the statistic, gamma, to determine if correlation between questionnaire response and wildernism scores was strong, moderate, or slight. The terms "strong," "moderate," or "slight" do not refer in an absolute sense to explained variation in patterns of response due to wildernism scores but to the relative proportional reduction in error that is possible when wildernism scores are used to predict respondents' answers to the questionnaire statements about wilderness behavior and management (Costner 1965).*

Eight out of ten persons felt that in wilderness-type areas *if you see a person doing something he shouldn't, you should say something to him about it,* and the more wildernist respondents were moderately more inclined to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		--- Percent	-----------		
I-2. In an emergency, the person or party in trouble has first claim on the time and energy of everyone near, even if some cherished plans have to be abandoned.	.63	93.0	4.0	3.0	G.20 + Moderate N = 1324

More than nine out of 10 agreed that *in an emergency, the person or party in trouble has first claim on time and energy of everyone near,* and the more wildernist respondents were moderately more inclined to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		--- Percent	-----------		
I-3. Trash left by previous back-country users should be removed by other users if they can do so.	.60	94.0	3.4	2.6	G.28 + Moderate N = 1329

More than nine out of 10 felt *trash left in remote back country should be removed by other users if they can do so.* The more wildernist respondents were moderately more inclined to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		--- Percent	-----------		
I-4. Campfires should be no larger than necessary.	.55	95.6	2.5	1.9	G.26 + Moderate N = 1324

More than nine out of 10 felt *campfires should be no larger than necessary* and more wildernist respondents were moderately more likely to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		--- Percent	-----------		
I-5. In the back country, formality should be put aside; everyone should be equal there.	.53	81.0	13.4	5.6	G.13 + Slight N = 1313

Eight out of ten felt *formality should be put aside and everyone should be equal in the back country* and the more wildernist respondents were slightly more inclined to feel this way.

Factor II: A Norm Suggesting Rejection of Controls on Behavior

Four out of five statements in factor II were worded so as to imply a rejection of controls on behavior. The fifth statement also referred to a measure of social control (fire permits), but response to it was negatively correlated with the other statements in the group.[15] This indicates that persons endorsing fire permits as a requirement tended to reject the other questionnaire statements that implied freedom from constraints on behavior. Expressed another way, users who did not feel fire permits should be required also felt they should be allowed to camp wherever they pleased, to shortcut trails, and cut brush, limbs, or wood. This suggests that **some wilderness users tend to consistently reject controls on behavior and others consistently find them acceptable.** This tendency does not appear to be related to respondents' wilderness-purist tendencies, since the correlation between wildernism scores and response to the items was negligible or slight in four of the five items. We feel, on the basis of response patterns appearing throughout the study, that the tendency to reject or accept reasonable controls on behavior is related to the respondents' knowledge of the necessity for such controls. It thus follows that **educational programs directed at reasons for constraints on behavior would greatly increase the likelihood that behavior controls would be successful.** We are suggesting that education is perhaps more important than enforcement in bringing about proper wilderness behavior.

Factor II	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		- - - Percent	- - - - - - - - - -	- - - - - - - - - - -	
II-1. One should camp wherever he pleases in the remote back country.	.69	57.8	7.7	34.5	G.15 + Moderate N = 1326

Almost six out of 10 persons felt that they *should be allowed to camp wherever they please.* The more wildernist respondents were moderately more inclined to feel this way. The response patterns were more pronounced from visitors to the Eagle Cap Wilderness.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		- - - Percent	- - - - - - - - - -	- - - - - - - - - - -	
II-2. If a person sees a shorter route than the trailmakers used, he should have the right to decide whether to stay on the trail or not.	.65	32.2	14.9	52.9	G.00 Negligible N = 1323

About one-half of the visitors felt they *should stay on designated trails, but one out of three felt he should be able to shortcut trails if he wanted to.* The response pattern was nearly identical for the more wildernist respondents and other users.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		- - - Percent	- - - - - - - - - -	- - - - - - - - - - -	
II-3. In remote back-country recreational areas, nobody had better try to tell me what I should or shouldn't do.	.63	4.2	11.3	84.5	G-.02 Negligible N = 1323

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[15] *The negative factor loading (-.37) for the statement concerning fire permits indicates that people endorsing a fire permit requirement tended to disagree with the other statements.*

Over eight out of 10 respondents did not feel that *"nobody had better try and tell them what to do."* Response was similar among the more wildernist respondents and others.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent			
II-4. In the back country, a person should be free to cut brush or limbs for his bed or wood for his campfire.	.45	52.0	12.5	35.5	G-.10 Slight N = 1316

More than five out of 10 persons felt they *should be free to cut brush, limbs, or wood in the back country.* But the more wildernist users were slightly less inclined to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent			
II-5. Every back-country traveler (or party of travelers) should be required to obtain a fire permit from the administrative agency before entering an area.	-.37	63.7	18.7	17.6	G.01 Negligible N = 1329

More than six out of 10 respondents felt *all back-country travelers should be required to obtain fire permits before entering such areas.* The more wildernist respondents and other users felt alike on this item.

Factor III: A Norm Suggesting Withdrawal from Symbols of Civilization

The statements in factor III all refer to things or activities symbolizing civilization; e.g., radios, barking dogs, roads, etc. These symbols and activities are all described within the statements as being inappropriate to use of remote back country of wilderness character. The pattern of response to these statements indicates that **visitors vary in the intensity of their aversion to civilization reminders, such as radios, yelling people, etc., while traveling in the wilderness, but the more wildernist persons consistently oppose such things.** The pattern and the correlation with wildernism scores suggest that although people will not be clamoring for rules and regulations to control these kinds of behavior, reasonable rules and regulations to preserve primeval conditions and solitude would be acceptable where needed, particularly to the more wildernist users. Merriam and Ammons (1967) reported two findings related to our norm suggesting withdrawal from symbols of civilization. They reported that "roads were loudly opposed, though radio and, for some, television in the wilderness seemed less objectionable."

It is interesting to note the strong association between wildernism scores and response to most of these statements. **Wilderness-purists appear to strongly differentiate the wilderness environment as a place with appropriate and inappropriate behavior**; e.g., radios, barking dogs, and yelling people do not belong. Of specific interest to resource managers is the response to statement number 3 indicating that a road to a place takes most of the fun out of walking there, even if the trail follows a different route. This suggests a basic incompatibility between road access and trail access.

Factor III

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent			
III-1. Radios should not be brought to the back country.	.64	30.9	35.9	33.2	G.39 + Strong N = 1323

About one out of three respondents felt that *radios should not be brought to the back country*, one-third were neutral, and one-third saw nothing wrong with such a practice. However, the more wildernist respondents strongly tended to agree that radios should not be brought into wilderness-type areas.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent			
III-2. Barking dogs, car horns, and yelling people do not belong in remote back-country recreational areas.	.62	92.1	5.0	2.9	G.55 + Strong N = 1326

More than nine out of 10 persons felt that *barking dogs and yelling people do not belong in wilderness-type areas*, and the more wildernist respondents strongly tended to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent			
III-3. A road to a place takes most of the fun out of walking there even if the trail follows a different route.	.61	71.7	12.7	15.6	G.56 + Strong N = 1328

Seven out of 10 persons agreed that a *road to a place takes the fun out of hiking there even if the trail follows a different route*, and the more wildernist respondents strongly tended to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent			
III-4. Playing cards and reading books are not appropriate to back country, unless the weather is bad.	.60	16.1	30.8	53.1	G.12 + Slight N = 1325

More than half the respondents disagreed that *playing cards and reading books are not appropriate in wilderness-type areas unless the weather is bad*, and almost three out of 10 persons were neutral. However, the more wildernist respondents were slightly more inclined to agree with the statement and thus oppose playing cards and reading unless the weather is bad.

Factor IV: A Norm Supporting Maintenance of Unpolluted Campsites

Factor IV contained the following three statements which seem to refer to maintenance of an unpolluted quality of campsites within the environment, the pattern of response indicates **a willingness on the part of the users to cooperate in achieving campsite quality and the presence of an informal code of conduct in this direction.** It might, therefore, be possible for managers to identify, publicize, and reinforce the site preservation benefits which result from other more subtle wilderness-user practices such as refraining from cutting limbs for beds, tying horses to trees near campsites, or making camps near the edges of lakes or streams.

Factor IV

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		---Percent-----------			
IV-1. If a considerable quantity of wash water must be disposed of, a sump hole should be dug for it.	.68	78.3	11.5	10.2	G.01 Negligible N=1326

About eight out of 10 persons felt a *sump hole should be dug for disposing of considerable quantities of wash water.* Response was similar from the more wildernist users and other respondents.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		--- Percent -----------			
IV-2. One should not wash his dishes, his clothes, or himself directly in streams or lakes.	.68	61.1	12.0	26.9	G.03 Negligible N = 1326

About six out of 10 felt *one should not wash dishes, clothes or himself directly in streams or lakes,* but almost three out of 10 disagreed. Similar response was received from the more wildernist users and others.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		--- Percent -----------			
IV-3. All evidence of use of an area should be removed when leaving a campsite.	.63	90.8	3.8	5.6	G.12 + Slight N = 1327

Nine out of 10 felt *all evidence of use should be removed when a campsite is left,* and the more wildernist respondents were slightly more inclined to feel this way.

Factor V:
A Norm Supporting Campcraft Skills

The last group of statements with similar response referred to some aspects of campcraft. These data suggest that among wilderness users, there is a subculture that places value on certain knowledge, skills, and experience. **However, certain of these activities that many users now support or find acceptable may not be appropriate in a future era characterized by increasingly heavy use of wilderness-type areas.** Opportunities for individual burying of garbage may be exhausted in areas with shallow soil. Informal campsite improvement if carried to extremes could be inconsistent with wilderness preservation objectives, and particularly if carried out to suit the varying preferences of successive users. For example, Lucas (1964b) reported that a thousand or more campsites had been cleared by canoeists in the Boundary Waters Canoe Area. In areas of wood shortage, particularly at high elevations, cutting brush and limbs for fire or beds may soon exhaust the supply and deteriorate the environment. Even fires may have to be prohibited in areas where wood is very scarce. An example of such an area is found in portions of the proposed Enchantment Wilderness in Washington State where the only remaining firewood at some lakes is found in picturesque snags that give the area much of its charm (Hendee and Mills 1968). Note that statement 4, concerning the cutting of brush or wood, also appeared in factor II with the statements suggesting a rejection of constraints on behavior.

We suggest again that lack of knowledge as to the cumulative long-range consequences of their activity accounts for support by some wilderness users for practices that will ultimately result in the decline of wilderness quality. **The acceptance of constraints on wilderness behavior lies in communicating why such controls are necessary.**

Factor V

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		------- Percent -------			
V-1. Noncombustible trash (e.g., tin cans, aluminum foil, glass, unburned garbage) should be buried	.66	84.0	1.5	14.5	G.04 Negligible N = 1320

More than eight out of 10 felt *noncombustible trash should be buried* and there was no significant difference in the pattern of response from the more wildernist respondents.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		------- Percent -------			
V-2. Moderate improvement of a campsite by the camper is desirable (e.g., removing brush and limbs, putting nails in trees for utensils, simple box cupboards, etc.)	.65	29.2	14.3	56.5	G-.30 -Strong N = 1329

Between five and six out of 10 persons *did not agree that moderate camper improvement of a campsite is desirable,* but about three out of 10 respondents agreed. The more wildernist respondents displayed a strong tendency to oppose improvement of campsites by users.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		------- Percent -------			
V-3. Camping isn't complete without an evening campfire.	.63	73.8	16.9	9.3	G-.13 -Slight N = 1326

Over seven out of 10 persons felt that *camping isn't complete without an evening campfire* but the more wildernist campers were slightly less inclined to feel this way.

	Factor Loading	Agree	Neutral	Disagree	Correlation with wildernism scores
		------- Percent -------			
V-4. In the back country a person should be free to cut brush or limbs for his bed or wood for his campfire.	.55	52.0	12.5	35.5	G-.10 -Slight N = 1316

More than five out of 10 persons felt they *should be allowed to cut brush, limbs, or wood in the back country,* but strong wildernists were slightly less inclined to feel this way.

Two Items Not Appearing in the Factor Analysis

Two statements suggesting norms for behavior in wilderness-type areas did not turn out to have patterns of response highly associated with any other group of statements. The statements indicated that:

> More than eight out of 10 persons felt that *a good rule to follow in wilderness-type areas is to take only pictures and leave only footprints*, and the more wil-

dernist respondents were moderately more inclined to feel this way.

Almost nine out of 10 persons *did not feel that bringing more luxuries made for a better camping trip.* The more wildernist respondents were even more strongly inclined to feel this way.

Informal Rules and Customs for Wilderness Use Summarized

A summary of responses to all of the questionnaire statements referring to informal rules and customs for back-country use is included in the appendix. The responses are summarized for each of the areas in which visitors were recorded. This will give wilderness managers and other interested parties the opportunity to inspect response to each statement as it varied among visitors to the three different areas. In the appendix, the statements are arbitrarily grouped under three headings different from those designated in the foregoing section based on factor analysis of response. In the appendix, they are organized under: (1) statements concerning personal freedom, (2) statements concerning camping habits, and (3) statements concerning expected behavior in wilderness-type areas.

Twenty-two questionnaire statements suggested some informal rules and customs that might be observed in wilderness-type areas. A factor analysis of responses indicated five general groups of statements about which wilderness visitors felt pretty much the same. These groups of statements or factors indicate shared feelings about certain wilderness behavior. The first group of statements implied the presence of **a norm among wilderness users suggesting feelings of equality and a sense of responsibility for both maintaining the propriety of each other's behavior and contributing, when necessary, to each other's welfare.** The second factor implied the presence of a **norm suggesting a rejection of controls on behavior.** Some users consistently rejected the concept of behavior controls and others consistently endorsed such concepts. We feel the rejection of reasonable behavior controls is based on a lack of knowledge as to the undesirable consequences of the behavior and that **educational programs directed at reasons for restrictions will greatly increase their acceptability.**

The third factor contained items suggesting some activities reminiscent of civilization and revealed **a norm suggesting a rejection of symbols of civilization.** The more wildernist users tended to be more intolerant of reminders of civilization than other users. The fourth factor indicated **an informal code of behavior working to maintain campsite quality.** The fifth and last group of statements indicated the presence of **informal sanctions for certain campcraft skills, some of which are not consistent with wilderness preservation in areas of intensive use.** Two statements, not highly associated in response pattern to the five groups of statements, endorsed taking only pictures and leaving only footprints in wilderness-type areas and asserted that luxuries did not improve a camping trip.

In general, wilderness users are a responsible group. Educating them as to why some restrictions are needed usually wins their cooperation. Here, Forest Service wilderness patrolman talks with Girl Scouts in the Three Sisters Wilderness.

Part IV

Management Preferences for Wilderness-Type Areas

Fifty-three of the questionnaire statements suggested management practices, policies, or guidelines that might be implemented in remote back-country areas of wilderness character.[16] These statements called for responses using the symbols SD, D, N, A, SA to designate strongly disagree, disagree, neutral, agree, strongly agree, respectively. The preferences so indicated by each person were then correlated with their wildernism scores. This was to determine if the more wilderness-purist respondents reacted differently to suggested management policies than other users who were less perceptive of wilderness values, and the effect certain management policies might have on them. The statements concerning management preferences and their appropriate statistical data are included in the appendix under the same headings in which they are discussed in the following text.

The Need To Differentiate the Management Preferences of Wilderness-Purists From Other Users

It is extremely important that the preferences for certain management policies be related to the respondents' orientation toward wilderness-purist concepts. A certain policy might receive the endorsement of a majority of the wilderness users, yet, if the disagreeing minority are wilderness-purists, it may indicate that the policy, despite its popular support, would violate the long-standing wilderness values to which the more purist users are especially sensitive. **Wilderness-purists are more perceptive of wilderness values and their opinions should receive added consideration.**

In addition, some types of recreation use depend on wilderness, but other uses do not, despite the fact that they are enhanced by a wilderness setting. For example, backpacking featuring long treks and solitude depends on wilderness-type areas. Fishing, on the other hand, is enhanced for many by a wilderness setting but does not depend on such an environment. The point is that some people may visit wilderness incidental to other activity whereas others visit wilderness because such settings are prerequisite to their activity or satisfaction. The management preferences of these different types of users should be differentiated because there are closer alternatives available to the incidental users. **Wilderness management should not be as sensitive to the preferences of users whose activities do not depend exclusively on wilderness for their satisfaction.**

Another reason for differentiating among the preferences of users is that there may be management policies vital to the preservation of wilderness that are not fully understood or appreciated by wilderness users. **It is vital for wilderness managers to be aware of differences in sentiment among different types of users so that the appropriate public can be informed as to the necessity of a policy before it is implemented.** As Mills[17] pointed out, needs and preferences must be compro-

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[16] *Again, it is unfortunate that it was necessary to use the phrase "remote back country of wilderness character" to avoid implying that some policies which might violate the Wilderness Act were being contemplated for such areas. This may have biased response to some items by some persons.*

[17] *See footnote 1, p. 2.*

mised to fit the ecological capability of the land. In such cases, knowing what types of users endorse or reject the necessary policy may make it possible to direct specific information at the critical segment of users. A case in point is "burying noncombustible trash." In areas of intensive use or where the soil is shallow, such a practice is not consistent with long-range wilderness preservation, yet our data showed overwhelming approval of the practice. In educating wilderness users to "pack out their debris" and the necessity of such a practice, many of the more wildernist public can be reached through conservation groups and outdoor clubs, since the stronger wildernists tend to belong to such groups. Other means would be necessary to reach the more urbanist users who tend not to belong to organized groups. To reach these users might also require a different appeal.

Wilderness management is not an area where consensus of users should be controlling, yet their preferences should be considered. Our plea to wilderness managers is to **avoid drawing conclusions in a popular vote context without first looking for indications of different feeling among different types of users and the concerned public.**

In addition, the fact that part of our study deals with wilderness management preferences should not obscure the fact that many management alternatives are restricted by the Wilderness Act. Others are permissible only where necessary to protect the area from the effects of use. In both cases, the data are still valuable in that they reveal the sentiment of wilderness users surrounding such issues and thus further define the users' perception of wilderness. In addition, readers, managers, researchers, and users alike should remember that under the Wilderness Act, recreation use is subordinate to preserving for all an unaltered wilderness resource.

Organization of the Data

The following pages contain interpretations of response to the 53 questionnaire statements concerning management of wilderness-type areas. Following interpretation of each logical group of statements, the meaning and implications of the results are explored and summarized. The related statements have been assembled under the nine subject headings they concern.

The basic response data for the individual questionnaire statements are found in the appendix under similar headings. In the appendix, the data are summarized for each of the three areas included in the study – the

Wilderness users felt that administrators of such areas should be specially trained. Here, Forest Service officials discuss management problems at a wilderness workshop in the Glacier Peak Wilderness (August 19, 1967).

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Eagle Cap, Three Sisters, and Glacier Peak Wilderness areas, respectively. The degree of correlation of response to each statement with wildernism scores is also indicated by the presence of a gamma statistic. The gamma statistics have, in turn, been classified as indicating relatively strong, moderate, or slight correlation between wildernism scores and reaction to the suggested management policies.

Wilderness-User Attitudes Toward Management Policies

I. User attitudes on administration of wilderness-type areas. – Four questionnaire statements were related to the administration of wilderness-type areas. Response to these statements indicated the following:

> Three out of four persons felt that administrators of wilderness-type areas should be specially trained and their task recognized as different from administration of other types of wild land. Not surprisingly, the more wildernist respondents showed a stronger tendency to feel this way than did other users.
>
> Almost eight out of 10 persons agreed that wilderness-type areas should be administered as units distinct from adjacent lands that may be devoted to harvesting timber and other resources. The more wildernist users showed a moderately stronger tendency to feel this way.
>
> Sixty-five percent of the respondents disagreed with the statement, "it is not necessary to patrol wilderness-type areas regularly," with the more wildernist users displaying a slightly stronger tendency to feel this way. About two out of 10 persons didn't feel regular patrol was necessary, and 15 percent were neutral.
>
> Six out of 10 persons did not feel that all cleanup duties in wilderness-type areas should be handled by employed personnel on regular schedules, but about two out of 10 persons supported "all cleanup by employed personnel," and the rest were neutral. The more wildernist respondents showed a slightly greater tendency to oppose "all cleanup by employed personnel" than did other users.

The response to these statements indicates that wilderness users in general, and particularly the more wilderness-purist, feel that **wilderness-type areas warrant management as administrative units distinct from adjacent**

Wilderness users endorsed the fact that regular patrol is necessary in such areas. Here, Forest Service wilderness patrolman travels with Girl Scout party in front of Broken Top in the Three Sisters Wilderness.

units, require regular patrol, and that **persons administering these areas should have special training for the task.** The responsible attitude of users is evident from the 60 percent who **did not feel that cleanup duties should be handled exclusively by employed personnel.** However, that the other 40 percent did **not** demonstrate this attitude toward cleanup clearly indicates the need for more education of users as to why a "pack it out yourself" program is necessary to maintain the quality of wilderness sites. As indicated in the section on wilderness behavior norms, **most wilderness users are exceptionally responsible in their attitudes. The minority who deviate from this accepted code, due to their background and lack of real interest in or understanding of the resource, must be reached.**

II. User attitudes concerning nature interpretation in wilderness-type areas. – Two questionnaire statements concerned possible means of providing more interpretation of natural features in wilderness-type areas. Response indicated that:

> Over six out of 10 people felt that a small book describing features observed along the trail, and designed to be carried in the backpack, should be sold by the administrative agency to enhance the pleasure of a back-country trip. Three out of 10 people were neutral, and less than 10 percent disagreed. However, the more wildernist respondents showed a slight tendency to disagree with the idea. It may be that these wilderness-purists have no need for such a guide because they already have the interpretive skills necessary to fully enjoy a wilderness trip or possess other interpretive material such as the books now being published by some conservation groups.
>
> Eight out of 10 persons felt that back-country rangers should be trained in public interpretation of the area's natural features, as well as in safety and trail techniques. The more wildernist respondents and others responded alike to this statement.

There seems to be support for interpretive booklets pertinent to wilderness-type areas and for more interpretive training of wilderness administrators, as witnessed in the response to the foregoing questionnaire statements. However, in a subsequent section of the questionnaire, less than one-third of the people favored descriptive signs giving interpretation of features of the area, and one-third opposed the idea, particularly the more wildernist users. It appears that **more interpretation is desired in wilderness-type areas, but the means of accomplishing it are crucial to acceptance of the idea. Interpretive signs constitute a defacement of wilderness; interpretive books in the users' packs do not.**

There are many advantages to be obtained from development of acceptable interpretive techniques for use in wilderness. Development of an appropriate interpretive booklet could raise the quality of the wilderness experience for many users, help disperse use to lesser known points within a wilderness, and impart appropriate rules and codes of behavior for such areas. Merriam and Ammons (1967) also concluded from their study of wilderness in Montana that "much could be done with adequate trail information or a published guide book which could be sold to users." Several excellent guidebooks, some including valuable interpretive material, have recently been produced by conservation groups, and reports indicate they sell extremely fast. As Merriam and Ammons (1967) point out, such books can help bridge the gap in understanding of wilderness between different types of users.

However, many of these books present information beyond the scope of interest or the geographical area of concern to the user and are expensive. They do not fill the need for an interpretive brochure which briefly presents material of interest or value to users of a specific area; e.g., geological, botanical, historical, archeological.[18]

III. Attitudes toward motorized equipment in wilderness-type areas. – Two questionnaire statements concerned the use of motorized equipment in the wilderness-type areas. Response indicated that:

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[18] *As a result of the findings reported in this publication, a Forest Service-sponsored study is now being carried out, under cooperative agreement with the University of Washington, to explore the desired dimensions of such booklets, the potential impact on wilderness use and users, and the possible means of distribution.*

> More than eight out of 10 persons felt that motorized trail bikes should be prohibited, and the more wildernist respondents tended even more strongly to oppose such vehicles.
>
> More than eight out of 10 persons opposed the idea that, if they can get them there, back-country users should be permitted to use powerboats on back-country waters. The more wildernist respondents opposed the idea more strongly than did the other respondents.

Response to the foregoing two statements indicates that wilderness users, and wilderness-purists in particular, overwhelmingly oppose the use of motorized trail bikes or powerboats in wilderness-type areas.

There appears to be a close relationship between our findings concerning the use of motorized trail bikes and powerboats in wilderness and the findings of Lucas (1964b, 1965) and Lucas and Priddle[19] in the study of the Boundary Waters Canoe Area. Lucas found that paddling canoeists were more exacting in the conditions they perceived as constituting wilderness and were particularly sensitive to the presence of motorboats, despite their common use in the area. The canoeists might be compared with the more wildernist respondents included in our study. Merriam and Ammons (1967) also found that motorboats and motor scooters were frowned upon by most persons interviewed in their study of visitors to the Bob Marshall Wilderness, the Mission Mountains Primitive Area, and back-country portions of Glacier National Park. They point out that "it is of interest to note that some users, two or three in each area, do not find scooters objectionable." Their sample for the three areas combined totaled 107 persons, indicating that something less than 10 percent of the users did not object to such vehicles. Our study revealed 9.9 percent who did not object to motor scooters and 7.3 percent who were neutral. The percent not objecting to motorboats in our study and theirs was nearly identical, 8.3 percent and 7.9 percent, respectively.

Less than 10 percent of the wilderness visitors felt the use of motorized trail bikes was appropriate to wilderness-type areas.

IV. Attitudes toward the use of helicopters. – Seven questionnaire statements concerned the use of helicopters in wilderness-type areas. Response indicated that:

> Almost everyone (96 percent) agreed that the use of helicopters is justified in wilderness-type areas for protection of the area (e.g., from fire).
>
> Almost everyone (98.6 percent) agreed that the use of helicopters is justified in wilderness-type areas for protection of human life.
>
> Over three out of four persons did not feel that the use of helicopters is justified in wilderness-type areas for visits by prominent people, and the more wildernist respondents tended more strongly to disagree with the idea.

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[19] *Lucas, Robert C., and Priddle, George B. Environmental perception: a comparison of two wilderness areas. Paper presented at annual meeting of Association of American Geographers, Syracuse, N. Y., March 31, 1964.*

The use of helicopters in wilderness-type areas was acceptable to a majority of users if such use helped preserve wilderness values; e.g., control of fire, eliminating overuse of trails by large pack strings, and wildlife protection. However, the more wilderness-purist users strongly opposed the use of helicopters.

About six out of 10 persons agreed that the use of helicopters is justified for routine administration and maintenance of wilderness-type areas, but one out of four (26.6 percent) disagreed. The more wildernist respondents displayed a strong tendency to oppose the idea.

Two out of three persons felt that the use of helicopters is justified in wilderness-type areas for bringing material and equipment to construction sites which otherwise would require large strings of pack animals, but almost two out of 10 persons disagreed. The more wildernist respondents displayed a moderate tendency to oppose the idea.

Fifty-six percent of the persons felt that the use of helicopters is justified in wilderness-type areas for bringing patrolmen to and from the area, but almost three out of 10 persons disagreed. The more wildernist respondents showed a strong tendency to oppose the idea.

More than 7 out of 10 persons felt that the use of helicopters is justified in wilderness-type areas for wildlife observation or control, but the more wildernist respondents showed a moderate tendency to disagree with the idea.

The collective response to all seven of the foregoing items suggests that almost all wilderness users **favor** the use of **helicopters for protection of the area from fire** and for **protection of human life** and **oppose** such use **for visits by prominent people**, with the more wilderness-purist users expressing stronger than average disapproval of the latter. A majority of the users accept the use of **helicopters for routine administration and maintenance, for bringing materials and equipment to construction sites where the alternative is to use large pack strings, bringing patrolmen to and from the area, and for wildlife observation and control.** But, those users with stronger wilderness-purist leanings tended to disagree with statements suggesting such uses of helicopters. **The use of helicopters for many purposes seems acceptable to a majority of wilderness visitors but apparently violates the ideals of the more wildernist visitors.**

Properly located trail skirting meadow at edge of timber is in good shape, despite heavy use.

Trails through the middle of meadows become muddy. Hikers and horses then move to one side. Soon multiple trails scar the landscape.

However, there was less opposition by the more wilderness-purist users where the issue was related to preservation of wilderness values (fire, overuse of trails by large pack strings, wildlife protection) than where the issue was related to routine management of such areas (e.g., routine administration and maintenance, bringing patrolmen to and from the area).

Merriam and Ammons (1967) found that a majority of respondents in their study of Glacier National Park back country and the Bob Marshall Wilderness felt airplanes (helicopters) were needed for emergency use or patrol, but they pointed out in their management recommendations that "it would be a good idea to restrict helicopter use, even in emergencies, to places not frequented by visitors."

We suggest that there may be advantages to the use of helicopters for many management purposes that would enhance the preservation of wilderness (Hendee and Mills 1968). However, the sight or sound of a helicopter is a repulsive thing to most users in a wilderness-type environment, and endorsement of the use of helicopters should not be construed as approval of their visual or audible effects on the environment.

V. Attitudes towards trails in wilderness-type areas. – Five questionnaire statements concerned the kinds of trails preferred by users in wilderness-type areas. Response indicated that:

> Three out of four persons disagreed that trails in the wilderness-type areas should be nonexistent, only blazed or marked routes.
>
> Almost everyone (86.6 percent) agreed that trails in wilderness-type areas should be developed and maintained consistent with volume of use.
>
> Three out of four persons felt that trails in wilderness-type areas should be of varied type and quality to different places, thus satisfying varied interests, but the more wildernist users showed a slight tendency to disagree.
>
> More than four out of five persons dis-

agreed that trails in the wilderness-type areas should be of high standard throughout the area, three out of 10 persons were neutral and only about one out of four agreed. However, the more wildernist respondents displayed a more moderate tendency than other users to oppose high-standard trails.

About eight out of 10 persons did not feel that trails in wilderness-type areas should be surfaced with sawdust or wood chips to keep dust down, with the more wildernist respondents strongly opposing such a practice.

Response to the foregoing items suggests that **trails should be developed and maintained appropriate for the use received – of varied quality** and **not of uniformly high standard throughout wilderness-type areas**. However, there appears to be only **little support for very low-standard trails** (e.g., blazed or marked routes) and **even less support for trails surfaced with sawdust or wood chips** to keep the dust down. These preferences seem quite consistent with a resolution adopted at a recent conservation group convention. The resolution asked that the Forest Service "when setting up standards of width and quality, and width of clearing, give more consideration to local terrain and anticipated use, and encourage the building of trails to blend into the hillsides and wind through the trees."[20]

VI. Signing preferences of wilderness users. – Ten questionnaire statements concerned wilderness-user preferences for signing.

Queries included preferences for construction materials, content, complexity, and location of signs. Response indicated the following:

A. Materials for signs

More than three out of four persons agreed that signs in wilderness-type areas should be of wood. Two other statements, suggesting enameled metal and stamped aluminum or stainless steel as sign materials, received only 8.2 percent and 16.0 percent agreement, respectively. There was a slight tendency for the more wildernist respondents to endorse wood signs and reject metal signs more than other users.

This statement illustrates how user preferences can conflict with management necessity. Metal signs have been used in back-country areas for many years because of reduced damage from bears, vandals, porcupines, and snowbreak, in addition to the smaller initial investment required. Wilderness managers must administer such areas with extremely limited funds, and the costs of meeting some preferences may greatly exceed the benefits. One inference that should be drawn, however, is that metal sign materials apparently are not consistent with most users' concept of wilderness. Their aversion to metal signs may be minimized through good taste on the part of the wilderness managers in the design, location, and intensity of metal signing where it is necessary.

B. Content of signs

About seven out of 10 persons felt that signs in wilderness-type areas should be directional only, giving distances to key points. An opposing item indicated only about three out of 10 persons felt that signs should be descriptive, giving interpretation of features of the area, but on the latter statement, another three out of 10 persons were neutral. The more wildernist respondents showed a moderate tendency to favor directional-only signs more than other users and a strong tendency to oppose interpretive signs more than other respondents.

C. Complexity of signs

A series of three statements dealt with the complexity of signs. The first indicated that four out of 10 persons agreed and about one out of four disagreed that signs should be simple, one item per sign, several signs per post. Respondent-agreement fell from about 40 percent to 15 percent and disagree-

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[20] *Federation of Western Outdoor Clubs, Resolution No. 33, 1967. Trail construction standards. Adopted at annual convention, Portland, Oregon, September 1967.*

RAILROAD CREEK TRAIL 1256
HART LAKE 3½
LYMAN LAKE 7
CLOUDY PASS 9
WENATCHEE NATIONAL FOREST

Most wilderness users felt that signs in wilderness-type areas should be rustic and for directional purposes only, not for interpretive purposes.

MINERS RIDGE TRAIL
SUIATTLE ROAD 12
SUIATTLE RIVER 4

Rustic wood signs, like these at a junction in the Glacier Peak Wilderness, fit the wilderness environment and were preferred by most users.

ment rose from about 27 percent to 42 percent on this statement when it was changed to specify signs should be simple, one item per sign, only one sign per post. Almost 50 percent of the users opposed the idea that signs should be elaborate, each sign large enough to include several items.

Between three and four out of 10 persons were neutral on these three items concerning signs, indicating confusion or a lack of clear-cut preference. The more wildernist respondents were slightly more inclined than other users to endorse simple signs, one item per sign, several signs per post, and to reject the same item when changed to specify only one sign per post. These more wilderness-purist users were also more opposed to elaborate signs with many items than were other users.

D. Location of signs

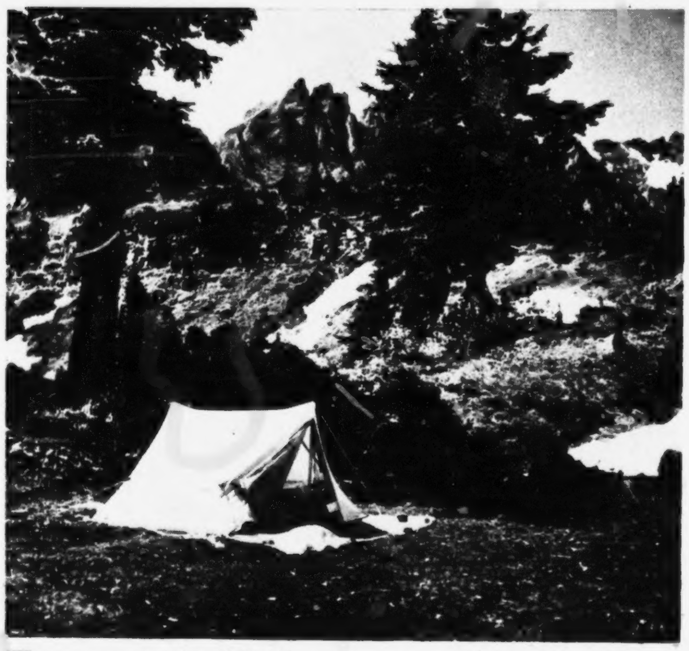
Five out of 10 persons agreed that signs should be placed at trail junctions only. Eight out of 10 respondents disagreed that signs should be grouped into a single directory of all routes emanating from one trailhead, with no further signs along the various trails. The more wildernist respondents showed a moderate tendency to favor signs at trail junctions more than other respondents, but all types of users alike tended to oppose single sign directories located at trailheads.

Response to the 10 questionnaire statements concerning signs indicated that **signs constructed of wood are overwhelmingly preferred over enameled metal, stamped aluminum, or stainless steel. A strong preference was indicated for signs giving directions only as opposed to signs interpreting features of the area. Preference was also given for simple sign design with one item per sign,** several signs per post. The concept of having elaborate signs large enough to include several items was rejected. The preferred location for signs was a trail junction rather than concentrating directions only at trailheads. The more wildernist respondents showed a slight tendency to support the preferences expressed by the largest percentage of other users. Between three and four out of 10 persons were neutral in their preferences on most of the statements, indicating a lack of clear-cut opinions concerning signs or, perhaps, some confusion over the questionnaire statements. The message for wilderness managers seems to be: **use wood signs where possible, keep them simple with directions only, and place them at trail junctions rather than concentrating them at trailheads.**

We neglected to include one important statement concerning signs in wilderness. This statement would have referred to the practice of designating trails by number rather than by name. Having no data on the preference of a sample of users concerning this issue, we can only give our opinion based on our personal preferences and the comments of many users with whom we have discussed our study. Our opinion is that this practice, at least in part, operates against the benefits to be derived by the user from a wilderness visit. We acknowledge the difficulties of transportation planning which extend even to wilderness-type areas, and there may be merit in the easier reference to numbered routes on maps. However, when hiking on a back-country trail, feeling satisfaction over having temporarily escaped the impersonal structuring of daily life, we are disappointed and offended at being greeted by a sign informing us that we are on Trail 1812b and Trail 1812c is a few miles ahead.

VII. Attitudes toward facilities and site improvements. – A total of eleven questionnaire statements dealt with facilities and site development. Two statements concerned toilet facilities, four sampled preferences for different types of tables and fireplaces, three related to protective developments facilitating horse use, and two referred to the construction of shelters in wilderness-type areas. The responses to these items are summarized in the following:

A. Attitudes toward toilet facilities
Five out of 10 persons agreed that outhouses are consistent with proper use of wilderness-type areas, and only about three out of 10 persons disagreed with the statement; however, the more wildernist respondents strongly tended to oppose the idea.

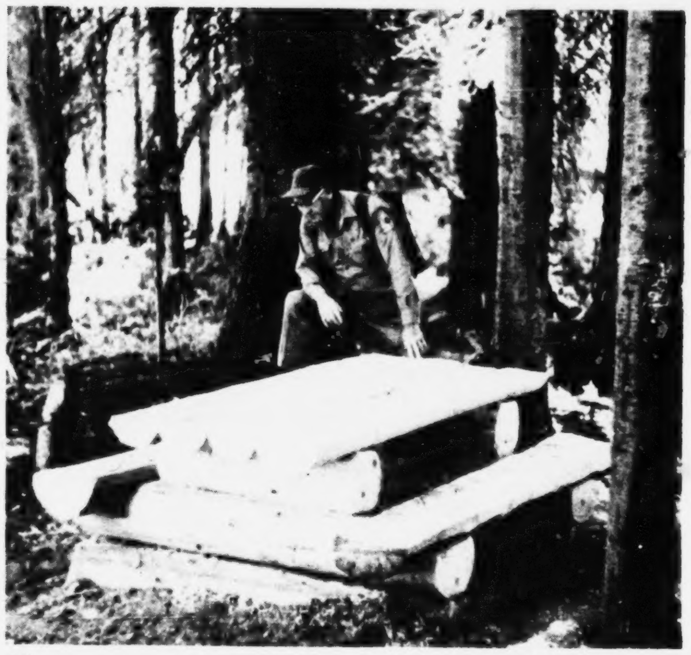


There were mixed feelings by respondents about facilities and site improvements. The more wilderness-purist users opposed them. Here is a backpacker's camp in the Glacier Peak Wilderness.

About one-third of the users felt that no toilet facilities whatever are consistent with proper use of wilderness-type areas, but almost 45 percent of the persons disagreed. The more wildernist respondents again tended to strongly oppose the presence of any toilet facilities in wilderness.

The Outdoor Recreation Resources Review Commission (1962) study also found 66 percent of their interviewed respondents endorsed primitive sanitary facilities, but in a postcamp questionnaire 53 percent indicated opposition to even rustic sanitary facilities. Bultena and Taves (1961) reported 78 percent of the canoeists interviewed in the Boundary Waters Canoe Area rated toilets as important. The response to our questionnaire statements concerning toilet facilities and the results of these other studies suggest some disagreement concerning the acceptability of outhouses in wilderness. In our study, wilderness-purists clearly opposed such facilities. This is another case where necessity and wilderness ideals appear to clash. A proper inference for wilderness managers would be to **use toilet facilities where necessary to protect the site but keep them as unobtrusive and rustic as possible.**

Movable rock fireplaces were endorsed by more users as being appropriate in wilderness-type areas than were permanent concrete fireplaces. Here, a freshly caught breakfast sizzles over a campfire in the Eagle Cap Wilderness.



Most users rejected the idea of plank tables in wilderness-type areas, but almost half of the respondents endorsed log or pole tables. Pictured here is a rustic, split-log table in the Railroad Creek drainage of the Glacier Peak Wilderness.

B. Attitudes toward tables and fireplaces

More than four out of 10 persons agreed that tables constructed of logs or poles are consistent with proper use of wilderness-type areas, but almost four out of 10 persons disagreed, including the more wildernist respondents who displayed a strong tendency to disagree.

Only one-fourth of the persons endorsed plank tables as being consistent with proper use of wilderness-type areas, but over one-half of the respondents disagreed. Again, the more wildernist respondents showed a strong tendency to disagree, even more so than they did for log or pole tables.

About six out of 10 persons disagreed with a statement suggesting that permanent (concrete) fireplaces are consistent with proper use of wilderness-type areas, and only about one out of four agreed. The more wildernist respondents strongly opposed the idea. As might be expected, almost five out of 10 persons endorsed movable rock fireplaces as being consistent with proper use of wilderness-type areas, with the more wildernist respondents showing a slight tendency to agree more than other users.

It is interesting to compare our findings concerning tables and fireplaces with some other studies. Bultena and Taves (1961) report that 60 percent of the canoeists rated fireplaces as important. Lucas (1964b), on the other hand, reported that canoeists more often asked that the picnic tables on back-country sites be removed than that more be added. He also reported that fire rings were preferred to iron and cement fireplaces. The ORRRC (1962) study found visitors to the large western wilderness areas, in general, opposed building "facilities," but that there was less resistance from respondents visiting eastern areas (Mount Marcy and Great Smoky) and the Boundary Waters Canoe Area than from those visiting the large western wilderness areas. Merriam and Ammons (1967) also found that simple campgrounds were desired.

With tables and fireplaces, as with toilet facilities, the message for managers seems to be **use only where necessary to protect the site, and keep them simple and rustic.** For campsite tables the rough-hewn table using split logs is an example, although another alternative might be to provide poles at campsites from which users could construct tables according to their need and preference

Pack strings are used by large parties of visitors and for many wilderness management tasks, but their use is exceedingly hard on trails, and pasture is often limited. In many locations, outfitters are required to carry food for their stock.

which could be dismantled when they left.

C. Attitudes toward developments facilitating horse use

More than one-half of the respondents did not feel that corrals for livestock are consistent with proper use of wilderness-type areas, and only two out of 10 agreed. The more wildernist respondents displayed a moderate tendency to oppose corrals more than did other users. Surprisingly, respondents from the Eagle Cap Wilderness, allegedly a horse-user area, showed no significantly greater acceptance of the idea than did visitors to other areas, but visitors to the Three Sisters Wilderness showed a little more opposition to such facilities.

About four out of 10 persons disagreed with an item suggesting that hitching racks or posts are consistent with proper use of wilderness-type areas, and less than three out of 10 supported such facilities. The more wildernist respondents were more likely to oppose such facilities. Again, respondents from the Three Sisters Wilderness Area were less likely to accept such facilities, and visitors to the Eagle Cap Wilderness showed no greater endorsement of hitching posts than users from all areas.

More than four out of 10 persons opposed drift fences for control of livestock as being consistent with proper use of wilderness-type areas, and a little over three out of 10 endorsed them.[21] The more wildernist respondents displayed a moderate tendency to oppose drift fences, but there was little difference in response from visitors to the different areas.

It seems obvious from the response to the several items concerning developments to facilitate horse use that there is mixed feeling on the part of users. This is probably related to whether or not they use horses. Conflicts between horse users and others are likely to increase as wilderness use increases. Horse use has already been prohibited in some areas where there is heavy foot travel. Snyder (1960, 1961, 1963), on the basis of 15 years of managing a large portion of the John Muir Wilderness (formerly the High Sierra Wilderness) in California, has frequently referred to the conflict between horse users and hikers. He indicates the belief that, where overuse is a problem, horses and mules should be the first to go as one 1,000-pound ironshod animal imposes

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[21] *Drift fences also offer opportunities to the unskilled user to enclose stock in the locations where protection is sought by such fences. Reports of this are not uncommon among experienced wilderness managers. Thus, areas with such developments should be administered more intensely to guard against such an occurrence.*

Livestock corrals, hitching racks or posts, or drift fences – all developments to facilitate horse use – were opposed by most users and particularly by wilderness-purists. However, such facilities can make the presence of horses less offensive by keeping them away from other users and limiting their destructiveness to campsites and surrounding vegetation. Pictured here is a horse-worn campsite at Steamboat Lake in Eagle Cap Wilderness.

the wear and tear of several hikers. Bury (1967), in a recent article, suggests that zoning by time of year may also be an answer. The unfavorable reaction of many of our respondents to the suggestion of facilities to implement horse use probably stems in part from their dislike of horses. The manager should be aware of the potential of such facilities for making the presence of horses less obtrusive and minimizing their impact, esthetic and physical. **Horses should be kept away from hikers where possible.**

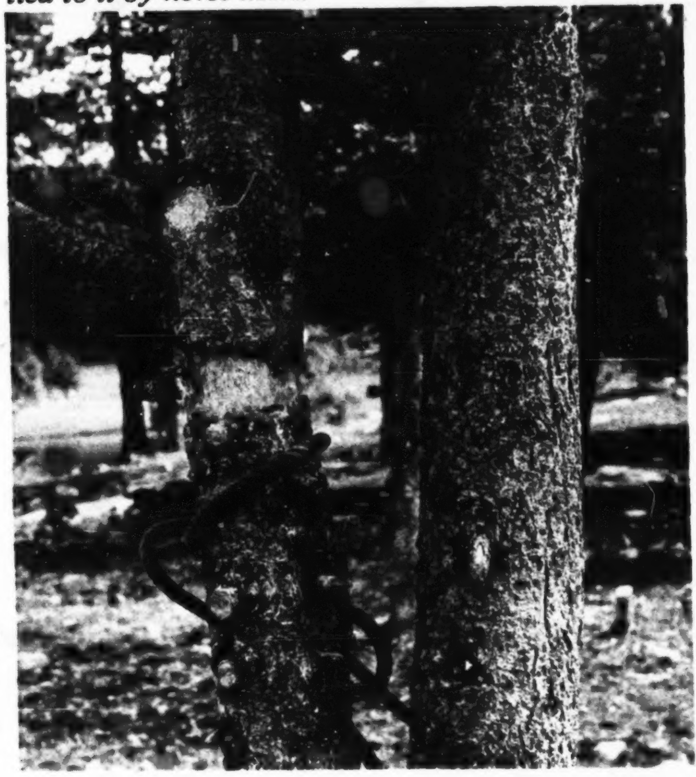
D. Attitudes toward permanently constructed shelters

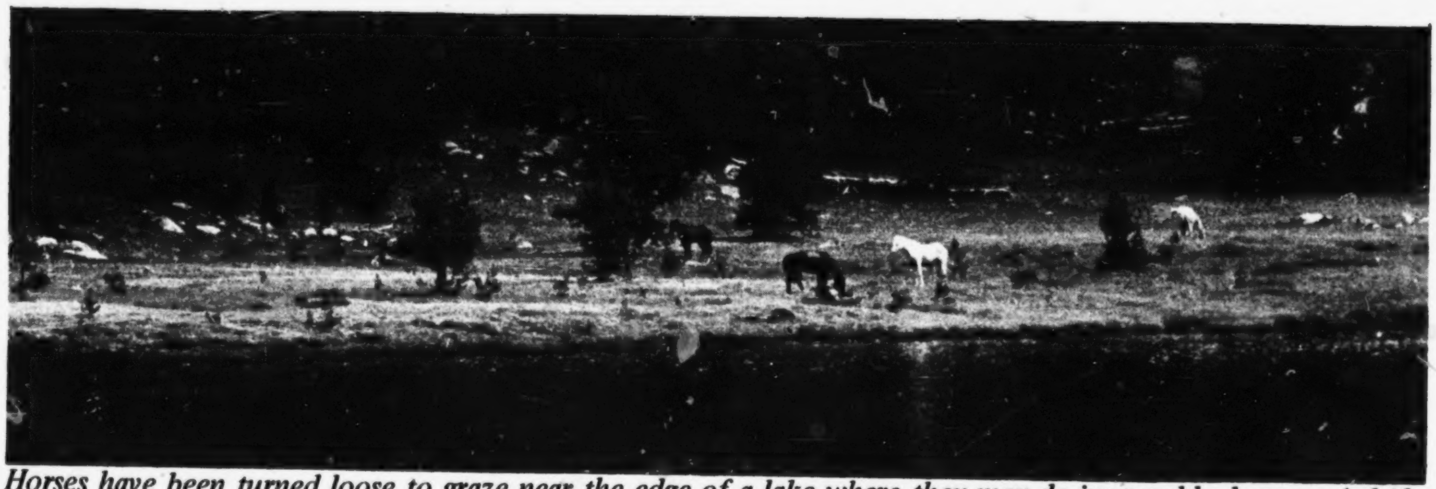
Almost six out of 10 persons endorsed a statement suggesting that three-sided shelters for hikers are consistent with proper use of wilderness-type areas with about one-fourth of the users disagreeing. The more wildernist respondents showed a moderate tendency to oppose shelters for hikers, and visitors to the Eagle Cap Wilderness Area also opposed the idea 15 percent more than other wilderness users.

Response was evenly divided into thirds between those agreeing, neutral, and disagreeing that locked patrol cabins for official staff use only are consistent with proper use of wilderness type areas. The more wildernist respondents

Horses tied to this tree have damaged the roots.

A hitching post might have prevented the certain death of this tree, girdled by friction of halter ropes tied to it by horse users.





Horses have been turned loose to graze near the edge of a lake where they may do irreparable damage. A drift fence could prevent it.

showed a moderate tendency to oppose such facilities.

Merriam and Ammons (1967) found that nearly 80 percent of the 31 back-country visitors they interviewed in Glacier National Park favored trail shelters, but on the two National Forest areas included in their study, such facilities were not endorsed by a majority of the users. In a report devoted to the Glacier Park visitors, Merriam (1967) reported that "chalets already in place were accepted by the users as were primitive shelters. Shelters in classified wilderness are also a legal problem. Constructing shelters for users would be in the realm of convenience and comfort to the wilderness user, which violates current interpretation of the Wilderness Act under Forest Service policy, and shelters to facilitate administration of wilderness would set precedents for shelters by a host of other resource administrators; e.g., snow survey personnel, cattle grazers, miners, etc.

In summary, response to the foregoing statements concerning facilities and site improvements indicated that **about five out of 10 persons accept outhouses as being consistent with proper use of wilderness-type areas, but the more wildernist respondents oppose any kind of toilet facilities.**

More than one-half of the respondents reject the suggestion of plank tables in wilderness-type areas, but opinions are evenly

Locked patrol cabins for official use only were endorsed by only one-third of the users. Pictured is snow survey cabin in the Railroad Creek drainage of the Glacier Peak Wilderness.

Six out of 10 users endorsed three-sided shelters for hikers as consistent with proper use of wilderness-type areas.

Special horse camp near Image Lake in the Glacier Peak Wilderness keeps horses where they can do the least damage.

divided on log or pole tables. Not surprisingly, the more wildernist respondents tend to oppose any kind of tables.

Permanent concrete fireplaces are opposed, but movable rock fireplaces are endorsed as being appropriate to wilderness-type areas. The more wildernist respondents strongly oppose concrete fireplaces but show a slight tendency to accept movable rock fireplaces more than other users.

Corrals for livestock were rejected by most wilderness users and particularly the more wildernist respondents. More persons (four out of 10) opposed hitching racks or posts than endorsed them (three out of 10). And again, the more wildernist respondents were more likely to oppose such developments. Over four out of 10 persons, particularly the more wildernist respondents, opposed drift fences, whereas, only about three out of 10 persons endorsed them. It is worth noting that on the three statements relating to developments facilitating the use of recreation livestock, respondents from the Eagle Cap Wilderness, allegedly a horse-user area, did not differ significantly in their pattern of response from that for all areas. On the other hand, persons from the Three Sisters Wilderness displayed a greater aversion to corrals for livestock and hitching racks or posts than did visitors to the other areas.

Hiker shelters serve as attractive nuisances in wilderness-type areas, leading to overuse. Here is the memorial shelter at Image Lake in Glacier Peak Wilderness.

Three-sided shelters for hikers were endorsed by six out of 10 persons, but the more wildernist respondents and those from the Eagle Cap Wilderness were more likely to oppose the idea. Locked patrol cabins for official use only received evenly divided response between those endorsing such facilities, those neutral, and those disagreeing, but the more wildernist respondents were more likely to disagree.

It has been difficult to make direct comparisons between our data and the results from other studies concerning facilities to implement wilderness use. Questions are never phrased the same, and some studies have used very limited samples. As each item was considered, we related it to similar material from other studies and, where possible, gave our conclusion.

As a concluding observation on the results of the preceding items concerning facilities, we suggest that **facilities of any type in wilderness seem to offend users who have wilderness-purist attitudes.** This, in turn, reinforces the terms of the Wilderness Act which provides for facilities and improvements only where necessary to protect the area. As McClosky (1966) points out "the key management concept (under the Act) is minimization of man's influence on the environment." This leaves the decision of whether or not to provide facilities up to wilderness **managers who must decide when facilities are necessary and must also be aware that despite their necessity in certain places, the presence of any improvements will offend the sensitivities of wilderness-purists.** In addition, **they must be kept rustic and subtle to be compatible with most users' concept of wilderness.**

VIII. Attitudes toward restricting use or charging fees. – Three questionnaire statements concerned rationing of human use, restricting horse use, and charging for use, respectively. Response indicated the following.

> Almost five out of 10 persons did not feel that use of wilderness-type areas has to be restricted to limited numbers of people in a given area at a given time, and only three out of 10 agreed.
>
> Two out of three persons disagreed that the use of pack animals should be prohibited in wilderness-type areas since they do considerable damage to natural features. The more wildernist respondents displayed a moderate tendency to oppose pack animals more than did other users.
>
> It was interesting that visitors to the Eagle Cap Wilderness were more likely to oppose restriction of pack animals.

A party of horseback riders in the Eagle Cap Wilderness ride a trail very close to the edge of the lake.

This is the first evidence that has appeared indicating that visitors to the Eagle Cap Wilderness, allegedly a horse-user area, are more favorably disposed toward the presence of horses in wilderness.

> Only four out of 10 persons felt that costs of back-country administration and maintenance should be defrayed by some form of moderate charge with strong wildernists showing a slight tendency to oppose a charge for use more than other users.

Merriam (1964) reported that respondents in his study of the Bob Marshall Wilderness would be willing to pay an average of $3.60 for an annual license to visit wilderness. The ORRRC (1962, page 254) study also reported a willingness to pay on the part of users and concluded on the basis of extensive analysis that a user fee would substantially reduce use.

In summary, **most wilderness users do not seem to feel that human use of back-country areas needs to be restricted or that the use of pack animals needs to be restricted.** Strong wildernists were more likely to favor restricting packstock use, but respondents from the Eagle Cap Wilderness were more likely to oppose such a restriction. **More than four out of 10 persons favored a moderate charge for use of wilderness-type areas to defray costs of administration and maintenance, but one-third of the respondents, and particularly the stronger wildernists, opposed the idea.**

We cannot help but observe an inconsistency between users' responses to the possibility of restricting or rationing use and the realities of current trends. Wilderness use is increasing rapidly, and both the esthetic and biotic carrying capacities of some areas are being exceeded, or soon will be, beyond high-quality levels. Lucas (1964b) reports on the basis of his extensive study of the Boundary Waters Canoe Area that the "more pure users" (canoeists) are particularly sensitive to crowding and that the area they perceived as wilderness becomes substantially reduced with crowding. He points out in another paper (Lucas 1965) that "if there are truly diminishing returns in increasing use of the wilderness as the data seem to show, a serious problem lies ahead. Rationing recreational use, accepting lower quality experience, or expanding wilderness would be possible responses (solutions) singly or in many combinations." These are not unique observations, for virtually all scientists who have studied wilderness report alarm concerning problems of overuse in spots (Frissel and Duncan 1965; Snyder 1961, 1963, 1966). The potential for increasing carrying capacity by better distribution of use is not infinite, and attempts to control distribution have largely been unsuccessful. Grazing, timber cutting, or other resource uses are not allowed without restricting them to a sustained-yield basis. Use of recreation resources should be no different. Ultimately, the use of wilderness will need to be rationed by charging fees or by other means. This reality must be faced, and wilderness managers, despite the resistance of many users to the idea of restricted use, must soon begin the task of educating the public to this reality of wilderness preservation. Research must also bend to the task of determining physical and esthetic carrying capacities, consistent with preservation objectives, to serve as standards upon which to base rationing decisions (Wagar 1964, 1966; LaPage 1963).

IX. Attitude toward resource management practices. – A total of eight questionnaire statements concerned resource management practices, and, in particular, restrictions that might be placed on such activities in wilderness-type areas. Response indicated the following:

> Virtually everyone (97.9 percent) agreed that man-caused fires in wilderness-type areas, and outbreaks of nonnative insects and diseases, should be extinguished as soon as possible, with the more wildernist users concurring slightly more than others.
>
> About 9 out of 10 persons did not feel that lightning-caused fires, heavy infestations of native insects, and heavy infestations of forest diseases should be allowed to run their natural course. However, the more wildernist respondents displayed a slight tendency to oppose control of lightning fires and a moderate tendency to oppose control of native insects and forest diseases. It is interesting to note that the ORRRC (1962) study found in general that less than one-half of their respondents favored control of forest insects by spraying.
>
> About nine out of 10 persons felt that sections of wilderness-type areas denuded by fire, insects, or disease, and subject to rapid erosion, should be protected as soon as possible by artificial restoration of an adequate cover of vegetation. However,

The heavily used Image Lake basin in the Glacier Peak Wilderness illustrates the problem of wilderness carrying capacity. The physical effects of overuse have required management measures, such as a special horse camp and a separate horse trail around the basin. Wilderness managers also wonder how many persons can be camped in such an area before the esthetic quality of the environment is so reduced that it ceases to be a wilderness experience. However, only three out of 10 wilderness users agreed that use of wilderness-type areas has to be restricted to limit numbers of people in a given area at a given time.

the more wildernist respondents were moderately inclined to oppose artificial revegetation of such denuded areas. The response to this statement resembles the ORRRC (1962) study finding that most users favored replanting trees in burned or barren areas.

Forty-five percent of the respondents approved and 40 percent disapproved of hunting in wilderness-type areas. Here, two successful hunters pack their kill from the Glacier Peak Wilderness.

Almost seven out of 10 persons disagreed that livestock grazing as a revenue-producing use should be encouraged in wilderness-type areas, since this will defray management costs. The more wildernist respondents, in particular, opposed such an idea.

About 45 percent of the persons felt that hunting should be forbidden in wilderness-type areas, but four out of 10 users disagreed. Strong wildernists showed a slight tendency to oppose hunting more than other users.

About 35 percent of the persons felt that even well-managed second-growth timber must always be assumed to have lower recreational value than a virgin forest, but almost one-half of the respondents disagreed. The more wildernist respondents showed a strong tendency to view second-growth forests as inferior, and visitors to the Glacier Peak Area were also more likely to feel this way.

In summary, virtually all users endorsed the control of man-caused fires and exotic insects or disease, lightning-caused fires, and heavy infestations of native insects and forest diseases. But, the more wilderness-purist respondents, although above average in their degree of support for control of man-caused fires and exotic insects or disease, were less receptive to control of lightning-caused fires and native insects and diseases.

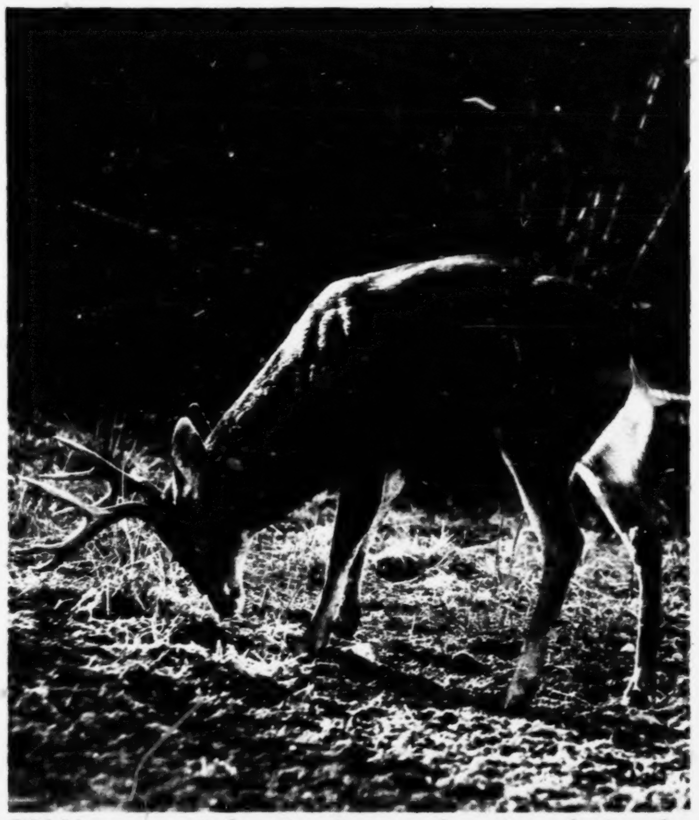
Strange as it seems, the advisability of controlling all fires in wilderness is now being questioned by foresters, the ones, no doubt, responsible for selling total fire control to the public. The total exclusion of fire has led to large scale vegetation change in wilderness areas where fires occurred frequently before the white man's influence. Controlled burning, loose herding of wildfires, and even prescribed wildfire now find advocates when experienced wilderness managers gather. The problem of fire in wilderness will, no doubt, become a major issue in the management of such areas in the future.

Most users also felt that wilderness-type areas denuded by fire, insects, or disease

should be protected by artificial restoration of adequate vegetation, but the more wildernist respondents tended to oppose such a practice. **About 35 percent of the respondents regarded second-growth timber as inferior to virgin forest in recreational value. Strong wildernists were especially likely to hold this view. But, about half of the respondents rejected the idea that second-growth timber must always be assumed inferior for recreation purposes.**

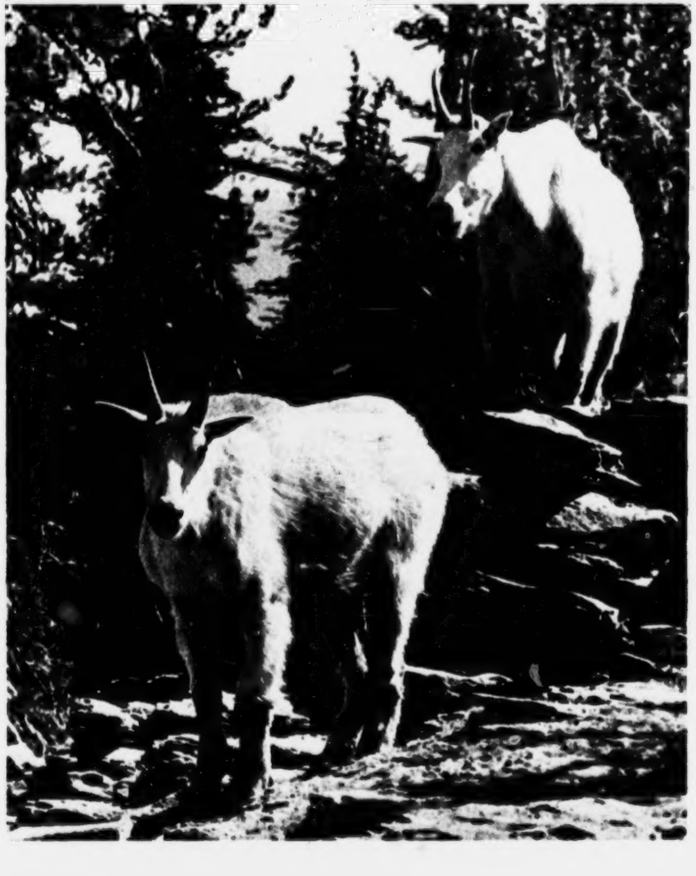
About seven out of 10 persons opposed livestock grazing as a revenue-producing use, and this opposition was accentuated among the more wildernist users. **Opinion was split regarding hunting**, with 45 percent opposing such activity in wilderness-type areas, and 40 percent approving.

These findings clearly lend support to the contention of Dean Stephen H. Spurr (1966) that there is a difference between "ecological wilderness" and "sociological wilderness." For some people, even appreciable human interference with the natural ecological processes in an area does not remove the area from what they conceive to be "wilderness." But, according to our data, the socially acquired conception of wilderness that is held by the wilderness-purist comes closer to being equivalent to ecological wilderness than does the conception held by others. Even the purist, however, appears likely to tolerate or even desire some management of some ecological processes. Spurr expresses the notion that the aim of wilderness management techniques always should be to avoid the introduction of obvious man-created incongruities into the wilderness landscape. The biologically trained manager appears far more likely to detect such incongruities in the landscape than most wilderness users.[22] This perceptiveness should be used to guard against subtle man-created changes in the wilderness environment and to interpret natural changes as they occur.



Wilderness use is heaviest in some locations during the early high-country hunting season. (Washington State Department of Game photo.)

Most mountain goats in the Pacific Northwest are found in remote wilderness-type areas.



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[22] *For further discussion of ecological aspects of wilderness management, see Stone (1965), Heinselman (1965), Lucas (1963b).*

Management Preferences Summarized

Responses to the 53 questionnaire statements concerning management policies for wilderness-type areas are too extensive to summarize here individually. Readers seeking an overview should refer to the summaries of the nine categories of statements in the preceding pages. At this point, we offer only a few general interpretations regarding variation in attitudes toward management policies by the different types of users and those persons who visited the different areas.

First of all, **those respondents who were more wilderness-purist in their orientation, as measured by the wildernism scores, often differed significantly in their management preferences from the preferences expressed by other respondents.** They frequently had the same opinions as other users but expressed them more intensely. In a number of cases, their preferences opposed the majority of other users. We suggest that the views of these purists represent the opinions of the group of people most perceptive of wilderness values. **To preserve wilderness of enduring character, opinions of wilderness-purists should be carefully weighed, even when they are in the minority.**

Second, **there was little variation in attitudes among visitors to the three different areas, despite alleged differences in the type of use each received.** This suggests some range of reliability and perhaps extends the validity of the data. It is particularly interesting that the respondents from the Eagle Cap Wilderness, presumed to be a horse-user area, did not differ in attitude, in most cases, from visitors to the other areas on statements relating to horse use or on other issues. Response from users of the Glacier Peak Wilderness, presumed to be a backpackers' area, and from persons sampled in the Three Sisters Area, reportedly a day-hiker area, were also similar. This suggests that characterizing an area on the basis of its perceived type of use should not be done without adequate data and is not as significant as many believe in its meaning to management. **This study indicates little support (in the form of systematic variations in user opinions) for different management policies for the three areas other than those necessary to adapt to obvious local conditions, such as terrain, access, weather, etc.**

Third, **many users expressed a preference for facilities and improvements** that are essentially prohibited under the terms of the Wilderness Act. The persons expressing such preferences were, in most cases, those users who were not as wilderness-purist as measured by their wildernism scores.

Summary

We undertook this study to find out what kinds of persons visit wilderness in the Northwest, what values and codes of behavior they associate with wilderness use, and how they feel about certain policies that might be used in the management of such areas. The study is based on the response of 1,350 persons to an eight-page questionnaire that was sent to a random sample of visitors recorded during 1965 in the Glacier Peak, Eagle Cap, and Three Sisters Wilderness Areas.

We found, as expected, that the wilderness users were highly educated. In fact, about one-third of them had postgraduate educations, and more than 60 percent of them came from less than the top 10 percent of the U. S. population in terms of educational attainment. Three out of four of the users were married, and all but 15 percent of these married respondents had children. About one-half of the wilderness use reported by the respondents took place in small family groups and much of the remainder with small clusters of friends, indicating that the wilderness experience is typically sought in the company of a few intimates.

The study indicated that our increasingly urban culture produces persons motivated to use wilderness; in fact, the more wilderness-purist users were most likely to have been raised in urban environments. The average respondent reported taking about six wilderness trips the previous year for approximately 2½ days each trip, accounting for an average of 14½ man-days of use. There was little dif-

This study and others indicate that recreationists tend to continue in the patterns learned in childhood. The families pictured here in the Three Sisters Wilderness will, no doubt, produce successive generations of wilderness users.

ference in these figures between users recorded in the three separate areas, indicating that wilderness visits in the Pacific Northwest are more frequent and of less duration than previously anticipated, particularly when compared with studies of wilderness use in the northern Rocky Mountains. Nearly 70 percent of the respondents reported taking their first wilderness trip before they were 15 years old. Almost half of the respondents indicated that three or more of their five closest friends also participated, at least occasionally, in wilderness-type recreation.

Membership was reported in 80 different groups identified by the respondents as "conservationist organizations," and 154 different groups identified as "outdoor clubs." Many groups were reported under both headings, but, amazingly, 218 different groups were mentioned. Approximately 30 percent of the wilderness users belonged to such groups, and they were more often urban residents, higher educated, and raised in urban areas than were most users. They made more and longer wilderness visits and had more close friends who were also wilderness users.

To differentiate between respondents who were wilderness-purist in their point of view and those who were less extreme in their wilderness values or even urban or convenience oriented in outlook, we designed an attitude scale in the questionnaire to measure these tendencies. The scale included a total of 60 items concerning features, activities, and benefits that might be associated with wilderness use. Wildernism (contraction of wilderness-purist) scores, based on the 30 most highly correlated items in the scale, were cal-

Wilderness trips can be taken "in style." Here, Trail Riders of the Wilderness enjoy their outfitter's cooking in the Glacier Peak Wilderness.

culated for each respondent. The more wilderness-purist respondents reacted differently to many of the suggested wilderness behavior norms and management policies. They opposed behavior and policies violating the complete naturalness of wilderness to a much greater degree than did most respondents. The more wildernist respondents also tended to be more highly educated, had more close friends who were wilderness users, and were more likely to belong to one or more conservationist organizations or outdoor clubs.

A factor analysis of the statements in the wildernism scale indicated seven clusters of statements about which most wilderness users felt the same. The factors which best differentiated the wilderness-purists from other users suggested, in general, a greater aversion to the artifacts and facilities of civilization and a greater devotion to satisfactions obtained from perceiving the undisturbed natural environment. Comparison of our findings with several other studies in widely different areas consistently revealed similar themes underlying wilderness use.

The total information on the characteristics of wilderness users suggests that wilderness values are the product of high sophistication, are typically developed early in life, and are spread largely through social processes like club membership and association with close friends. **To better understand the appeal of wilderness and the rapidly increasing use of these areas, resource managers must learn more about the social processes underlying such use and the values to which these persons are oriented.**

The questionnaire contained 22 suggested normative statements of informal rules and customs that might be observed when visiting wilderness-type areas. Factor analysis indicated five general groups of statements with consistent interrelated patterns of response. These groups of statements implied the presence of norms among wilderness users, suggesting: feelings of equality and a sense of responsibility for maintaining the propriety of each other's behavior; a rejection of behavior controls except where reasons were clearly understood; a rejection (particularly by wilderness-purists) of activities, behavior, and conveniences reminiscent of civilization; an informal code of conduct supporting maintenance of unpolluted campsites; endorsement of certain skills as appropriate to proper use of wilderness.

In general, we found very impressive norms of behavior among wilderness users. However, some of the behaviors sanctioned by wilderness users should be alarming to resource managers because they are inconsistent with sustaining the high quality of the resource. For example, many respondents felt that they should camp wherever they pleased and have the right to decide whether or not to shortcut trails. Almost four out of 10 persons saw nothing wrong with washing dishes, clothes, or themselves directly in streams or lakes, and 84 percent felt that noncombustible trash should be buried. Almost one-third of the respondents felt that making improvements in campsites by removing brush and limbs, putting nails in trees, and constructing simple box cupboards was appropriate, and half of the users felt cutting brush or limbs for beds, as well as wood for their campfires, was acceptable. Most wilderness managers have already had to cope with the effects of such practices. The rapid increase in wilderness use that is expected will undoubtedly bring larger numbers of visitors whose concepts of appropriate behavior deviate from what is consistent with preserving the resource. **Wilderness managers should immediately step up their attempts to educate such users and control their behavior.**

Fifty-three statements in the questionnaire called for reactions to suggested management practices, policies, and guidelines that might be implemented in wilderness-type areas. The statements refer to the following general areas of concern: (1) administration, (2) nature interpretation, (3) motorized equipment use, (4) helicopter use, (5) trails, (6) signing, (7) campsite facilities and improvements, (8) rationing and charging for use, and (9) restriction of resource management practices. In general, reactions to these statements indicated that users felt wilderness areas warranted management as distinct administrative units and that persons managing these areas should have special training for the task. They supported the concept of nature interpretation in wilderness with a small booklet that could be carried in the pack but not with signs. Not surprisingly, motorized trailbikes and powerboats were rejected by almost all users as being inconsistent with wilderness. The use of helicopters for many purposes was acceptable to a majority of wilderness visitors where such use was related to preservation of wilderness values, as in controlling fire, eliminating overuse of trails by large pack strings, and protecting wildlife. But, such a practice violated the ideals of wilderness-purists.

The respondents felt that trails should be developed and maintained appropriately with the amount of use received and should not be uniformly of high standard throughout wilderness-type areas. However, there was little support for low-standard trails or for surfacing of trails with sawdust or wood chips to keep the dust down. The implications under items concerning signs were for simple wood signs containing directions only, placed at trail junctions rather than concentrated at trailheads. The mixed preference for such facilities as tables, fireplaces, and toilets implied that they should be used only where necessary to protect the site and should be kept simple and rustic. There was little support for developments to implement horse use, such as corrals, drift fences, and hitching racks or posts. But such preferences might be related to a dislike by hikers for the presence of horses, and managers should be aware of the potential of such facilities for making the presence of horses less obtrusive and minimizing their esthetic and physical impact. Users were more likely to endorse three-sided shelters for hikers as being consistent with wilderness-type areas than locked patrol cabins for official use only. In all of the items concerning facilities and improvements, there was opposition from the more wilderness-purist users.

Most respondents did not seem to feel that human use or the use of pack animals needs to be restricted. More than four out of 10 persons favored a moderate charge for use, but strong wildernists opposed the idea. The general reluctance of users to support concepts of rationing and restricting use of wilderness warrants the concern of managers who will soon be forced to restrict use of some areas so as not to exceed physical and esthetic carrying capacities. Most respondents endorsed the control of man-caused fires, exotic insects or disease, lightning-caused fires, and heavy infestations of native insects and forest diseases. However, the more wildernist users were less receptive to control of these naturally occurring phenomena. Wilderness-purists also opposed artificial restoration of vegetation on denuded areas, whereas most respondents approved of such a practice. The opinion was split regarding hunting in wilderness areas, with 45 percent opposing and 40 percent approving of the activity.

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Appendix

This appendix contains data summarizing wilderness-user response to 22 questionnaire statements suggesting informal customs and rules that might be observed in wilderness-type areas and 53 statements suggesting wilderness management policies for such areas. Response is given in terms of the percent of respondents from each area and from all areas who agreed, were neutral, or disagreed with each statement.[23] In addition, the direction and degree to which response to each statement was associated (correlated) with the wildernism scores of the respondents are indicated in the right-hand margin. Following is an explanation of the process we used to categorize the relationship (correlation) between wildernism scores and response to other items as strong, moderate, or slight.

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[23] *Statistical analyses were performed by use of all five categories of response requested in the questionnaire (SA, A, N, D, SD), although only the percentage of respondents agreeing, neutral, or disagreeing is given.*

Gamma Statistics--A Method of Relating Questionnaire Response to Wilderness-Purist Tendencies

The statistic we used to measure the association between wildernism scores and response to individual questionnaire statements is called gamma. It indicates the proportional reduction in error one could achieve in predicting rank order variation in response to the statements (strongly agree to strongly disagree) from knowledge of an individual's wildernism score over the errors one would make if such predictions were made at random (Costner 1965, Goodman and Kruskal 1954). Gamma varies from -1.0 to +1.0, the algebraic sign indicating the direction of association. For simplicity's sake, it might be compared to a squared correlation coefficient.

As previously noted, all of the respondents were wilderness users; thus, they all shared some measure of wilderness values and therefore scored relatively high in the wildernism attitude test. This led to a relatively concentrated grouping of wildernism scores near the upper end of the scale; i.e., very few respondents were urbanist (development oriented) in their attitudes. When we correlated these scores with response to the items concerning management and behavior preferences, the possibility of getting high gamma statistics (i.e., -.70 or +.70) was reduced, because there were few low wildernism scores to balance the analysis. The highest values of gamma that we discovered were, thus, around -.55 or +.55, which as we indicate, is due to the statistical structure of the data. However, for practical interpretation (in a relative sense), the statements receiving gamma values near the upper end of the distribution in this study can be considered as quite strongly associated with wilderness-purist concepts as expressed in the wildernism scores.

Table 10 gives the distribution of gamma statistics and the four categories of association (correlation) with wildernism scores – "strong," "moderate," "slight" and "negligible" – that we designated for different values of gamma. Table 10 is based on response to all statements from visitors to all three areas combined. The algebraic signs of gamma are not indicated in table 10 because the categories of association (strong, moderate, slight, or negligible) are based on the strength of association indicated by the value of the statistic, regardless of the direction.

Table 10. – Distribution of gamma statistics relating wildernism scores to 74 questionnaire statements for 1,348 respondents

Absolute value of gamma	Number of statements in a category	Percent of statements in a category	Designated (relative) degree of correlation with wildernism scores
.30+	20	27.0	Strong correlation with wildernism scores
.15-.29	21	28.4	Moderate correlation with wildernism scores
.06-.14	20	27.0	Slight correlation with wildernism scores
.00-.05	13	17.6	Negligible
	74	100.0	

Suggestions for Use of the Appendix Data

Wilderness managers and others may wish to use the actual response data for individual questionnaire statements to answer more specific questions concerning wilderness-user tastes, preferences, or values. For instance, in the course of selecting the kind of sign material or the kind of signs to be used in a wilderness-type area similar to the Glacier Peak Wilderness, an administrator might wish to review the preferences of wilderness visitors expressed in this study. We suggest that the following things be kept firmly in mind:

1. The three wilderness areas included in the study, Eagle Cap, Three Sisters, and Glacier Peak, are characterized as a horse-use area, a day-use area, and a backpackers' area, respectively. The study indicates little difference in user preferences from the three areas, but managers might wish to check for even minor differences in response of users from

the wilderness that best approximates the area they are interested in.

2. See if there is a clear preference indicated in the percentages given under agree, disagree, or neutral. (Even if there is a clear-cut preference, go on to the next step.)

3. Look under "correlation with wildernism scores" to see if response to the statement was correlated (strong, moderate, slight, or negligible) with respondents' wilderness-purist (wildernist) tendencies. This indicates whether the more strongly wilderness-purist respondents tended to agree or disagree, more than other respondents, with the statement as it was presented; i.e., a +strong under "correlation with wildernism scores" indicates that the more wildernist respondents consistently agreed with the statement as it is presented more than did other users. These purists are most perceptive of long-standing wilderness values. Their opinions should be carefully considered.

4. Recognize that the data represent the collective preferences of wilderness users, purist and otherwise, but that there are many other considerations, such as legal provisions of the Wilderness Act of 1964, the ecological capability of the resource, established policies, etc.

Statistical Summary of Response to Statements Concerning Rules and Customs of Wilderness Users

Following are 20 questionnaire statements suggesting informal customs and rules to be observed in wilderness-type areas, a summary of the response they received from visitors to the three areas, and the relative correlation of wildernism scores with response to the statements. In the main body of the report, these statements are grouped into categories based on the similarity of response to clusters of statements as identified by factor analysis. Here, the statements have been arbitrarily grouped into the following categories based on the issues with which they are concerned:

I. Statements Concerning Personal Freedom.–

1. One should camp wherever he pleases in the remote back country

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	64.1	7.9	28.0	G.25 + Moderate
Three Sisters users	55.2	8.8	36.0	G.13 + Slight
Glacier Peak users	55.9	6.4	37.7	G.13 + Slight
All users	57.8	7.7	34.5	G.15 + Moderate
				N=1326

2. Moderate improvement of a campsite is desirable (e.g., removing brush and limbs, putting nails in trees for utensils, simple box cupboards, etc.)

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	35.7	13.5	50.8	G-.39 - Strong
Three Sisters users	25.8	15.5	58.7	G-.21 - Moderate
Glacier Peak users	28.4	13.7	57.9	G-.33 - Strong
All users	29.2	14.3	56.5	G-.30 - Strong
				N=1329

3. In remote back country recreational areas, nobody had better try to tell me what I should or shouldn't do.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	5.6	12.3	82.1	G-.03 Negligible
Three Sisters users	3.2	10.4	86.4	G-.05 Negligible
Glacier Peak users	4.4	11.4	84.2	G .03 Negligible
All users	4.2	11.3	84.5	G-.02 Negligible
				N=1323

4. If a person sees a shorter route than the trailmakers used, he should have the right to decide whether to stay on the trail or not.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	34.8	15.2	50.0	G .08 + Slight
Three Sisters users	32.8	15.4	51.8	G .00 Negligible
Glacier Peak users	29.8	14.1	56.1	G-.06 - Slight
All users	32.2	14.9	52.9	G .00 Negligible
				N=1323

5. In the back country, a person should be free to cut brush or limbs for his bed, wood for his campfire.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	53.0	13.2	33.8	G .03 Negligible
Three Sisters users	50.3	14.5	35.2	G-.14 - Slight
Glacier Peak users	52.8	10.0	37.0	G-.15 - Moderate
All users	52.0	12.5	35.5	G-.10 - Slight
				N=1316

6. Every back country traveler (or party of travelers) should be required to obtain a fire permit from the administrative agency before entering an area.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	62.0	19.0	19.0	G .03 Negligible
Three Sisters users	64.6	17.1	18.3	G-.01 Negligible
Glacier Peak users	64.1	20.2	15.7	G .01 Negligible
All users	63.7	18.7	17.6	G .01 Negligible
				N=1329

7. In an emergency, the person or party in trouble has first claim on the time and energy of everyone near, even if some cherished plans have to be abandoned.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	93.8	3.5	2.7	G.28 + Moderate
Three Sisters users	93.0	3.8	3.2	G.19 + Moderate
Glacier Peak users	92.5	4.6	2.9	G.15 + Moderate
All users	93.0	4.0	3.0	G.20 + Moderate
				N=1324

II. Statements Concerning Camping Habits.–

1. One should not wash his dishes, his clothes, or himself directly in streams or lakes.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	60.6	11.7	27.7	G.00 Negligible
Three Sisters users	63.2	12.6	24.2	G.01 Negligible
Glacier Peak users	59.4	11.6	29.0	G.08 + Slight
All users	61.1	12.0	26.9	G.03 Negligible
				N=1326

2. All evidence of use of an area should be removed when leaving a campsite.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	91.1	3.5	5.2	G.12 + Slight
Three Sisters users	91.8	2.8	5.4	G.03 Negligible
Glacier Peak users	89.4	4.8	5.8	G.21 + Moderate
All users	90.8	3.7	5.6	G.12 + Slight
				N=1327

3. If a considerable quantity of wash water must be disposed of, a sump hole should be dug for it.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	79.0	11.4	9.6	G .06 + Slight
Three Sisters users	80.4	10.8	8.8	G-.08 - Slight
Glacier Peak users	75.4	12.4	12.2	G .03 Negligible
All users	78.3	11.5	10.2	G-.01 Negligible
				N=1326

4. Noncombustible trash (e.g., tin cans, aluminum foil, glass, unburned garbage) should be buried.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	87.1	.9	12.0	G .11 + Slight
Three Sisters users	80.6	2.2	17.2	G-.04 Negligible
Glacier Peak users	85.3	1.2	13.5	G.08 + Slight
All users	84.0	1.5	14.5	G. 04 Negligible
				N=1320

5. Trash left by previous back country users should be removed by other users if they can do so.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	93.3	2.9	3.8	G.40 + Strong
Three Sisters users	93.0	4.8	2.2	G.21 + Moderate
Glacier Peak users	95.7	2.3	2.0	G.24 + Moderate
All users	94.0	3.4	2.6	G.28 + Moderate
				N=1329

6. Campfires should be no larger than necessary.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	95.8	2.4	1.8	G.35 + Strong
Three Sisters users	96.4	2.6	1.0	G.14 + Slight
Glacier Peak users	94.8	2.5	2.7	G.32 + Strong
All users	95.6	2.5	1.9	G.26 + Moderate
				N=1324

III. Statements Concerning Expected Behavior in Wilderness.—

1. Camping isn't complete without an evening campfire.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	76.0	15.8	8.2	G-.08 - Slight
Three Sisters users	74.1	16.5	9.4	G-.16 - Moderate
Glacier Peak users	74.0	18.0	10.0	G-.11 - Slight
All users	73.8	16.9	9.3	G-.13 - Slight
				N=1326

2. The more luxuries a party can bring, the better the camping trip.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	3.7	8.5	87.8	G-.44 - Strong
Three Sisters users	2.2	10.7	87.1	G-.31 - Strong
Glacier Peak users	3.5	8.7	87.8	G-.33 - Strong
All users	3.1	9.4	87.5	G-.35 - Strong
				N=1330

3. Radios should not be brought into the back country.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	22.5	41.3	36.2	G.32 + Strong
Three Sisters users	36.0	32.3	31.7	G.39 + Strong
Glacier Peak users	31.6	35.8	32.6	G.43 + Strong
All users	30.9	35.9	33.2	G.38 + Strong
				N=1323

4. A road to a place takes most of the fun out of walking there even if the trail follows a different route.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	68.8	10.5	20.7	G.53 + Strong
Three Sisters users	70.0	15.1	14.9	G.54 + Strong
Glacier Peak users	75.5	11.6	12.9	G.59 + Strong
All users	71.7	12.7	15.6	G.56 + Strong
				N=1328

5. Barking dogs, car horns, and yelling people do not belong in remote back country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	91.2	5.0	3.8	G.54 + Strong
Three Sisters users	92.2	5.4	2.4	G.50 + Strong
Glacier Peak users	92.7	4.6	2.7	G.61 + Strong
All users	92.1	5.0	2.9	G.55 + Strong
				N=1326

6. In the back country, formality should be put aside; everyone should be equal there.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	78.8	16.2	5.0	G.15 + Moderate
Three Sisters users	81.7	13.3	5.0	G.09 + Slight
Glacier Peak users	81.7	11.6	6.7	G.15 + Moderate
All users	81.0	13.4	5.6	G.13 + Slight N=1313

7. If you see a person in a back-country recreational area doing something he shouldn't do, you should say something to him about it.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	78.6	16.4	5.0	G.31 + Strong
Three Sisters users	79.2	17.2	3.6	G.09 + Slight
Glacier Peak users	83.8	13.5	2.7	G.27 + Moderate
All users	80.6	15.7	3.7	G.22 + Moderate N=1322

8. Playing cards and reading books are not appropriate to back country, unless the weather is bad.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	14.5	31.6	53.9	G.06 + Slight
Three Sisters users	16.5	29.0	54.5	G.10 + Slight
Glacier Peak users	17.0	32.1	50.9	G.18 + Moderate
All users	16.1	30.8	53.1	G.12 + Slight N=1325

9. A good rule to follow in back-country recreation is to "take only pictures, leave only footprints."

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	79.9	10.9	9.2	G.24 + Moderate
Three Sisters users	87.4	8.2	4.4	G.24 + Moderate
Glacier Peak users	83.2	9.1	7.7	G.25 + Moderate
All users	84.0	9.2	6.8	G.25 + Moderate N=1323

Statistical Summary of Response to Questionnaire Statements Concerning Wilderness Management Policies

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Following are the 52 statements concerning wilderness management policy that appeared in the questionnaire, a summary of the response they received from visitors to the three areas, and the relative correlation between wildernism scores and response to the statements. The statements are organized into the following categories, based on the issues with which they are concerned:

I. Statements concerning administration of wilderness-type areas.—

1. Administrators of back-country recreation areas should be specifically trained for this task, and the task should be recognized as different from administration of other types of wild lands.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	75.1	13.2	11.7	G.26 + Moderate
Three Sisters users	76.8	11.9	11.3	G.36 + Strong
Glacier Peak users	73.7	14.2	12.1	G.34 + Strong
All users	75.3	13.0	11.7	G.32 + Strong N=1319

2. Back-country recreational areas should be administered as units distinct from adjacent lands that may be devoted to harvesting timber and other resources.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	79.0	15.7	5.3	G.31 + Strong
Three Sisters users	76.2	19.4	4.4	G.24 + Moderate
Glacier Peak users	78.2	16.6	5.2	G.29 + Moderate
All users	77.7	17.4	4.9	G.27 + Moderate N=1321

3. It is not necessary to patrol remote back-country recreational areas regularly.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	22.0	13.8	64.2	G.13 + Slight
Three Sisters users	15.9	17.7	66.4	G.04 Negligible
Glacier Peak users	21.3	14.0	64.7	G.06 + Slight
All users	19.4	15.3	65.3	G.07 + Slight N=1324

4. All cleanup duties in remote back-country recreational areas should be handled by employed personnel on regular schedules.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	22.2	16.6	61.2	G-.22 - Moderate
Three Sisters users	21.9	18.3	59.8	G-.06 - Slight
Glacier Peak users	21.6	17.9	60.5	G-.15 - Moderate
All users	21.9	17.7	60.4	G-.13 - Slight N=1320

II. Statements concerning nature interpretation in wilderness-type areas.—

1. A small book, describing features observed along the trail and designed to be carried in the backpack, should be sold by the administrative agency to enhance the pleasure of a back-country trip.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	60.2	29.5	10.3	G-.24 - Moderate
Three Sisters users	63.8	28.4	7.8	G-.12 - Slight
Glacier Peak users	61.7	30.6	7.7	G-.08 - Slight
All users	62.1	29.5	8.4	G-.14 - Slight N=1323

2. Seasonal back-country rangers should be trained in public interpretation of the area's natural features, as well as in safety and trail techniques.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	79.4	15.9	4.7	G-.01 Negligible
Three Sisters users	79.9	15.9	4.2	G-.09 - Slight
Glacier Peak users	80.7	13.7	5.6	G .00 Negligible
All users	80.0	15.1	4.9	G-.03 Negligible N=1321

III. Statements concerning the use of motorized equipment in wilderness-type areas.—

1. Use of motorized trailbikes should be prohibited.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	83.2	7.1	9.7	G.45 + Strong
Three Sisters users	85.5	7.1	7.4	G.51 + Strong
Glacier Peak users	79.6	7.6	12.8	G.59 + Strong
All users	82.8	7.3	9.9	G.52 + Strong N=1327

2. If they can get them there, back-country recreationists should be permitted to use powerboats on back country waters.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	9.2	7.1	83.7	G-.63 - Strong
Three Sisters users	7.2	5.0	87.8	G-.56 - Strong
Glacier Peak users	8.9	11.6	79.5	G-.53 - Strong
All users	8.3	7.9	83.8	G-.55 - Strong N=1324

IV. Statements concerning the use of helicopters in wilderness-type areas.—

1. Use of helicopters is justified in remote back-country recreational areas for protection of the area (e.g., from fire).

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	96.7	1.5	1.8	G-.03 Negligible
Three Sisters users	96.6	1.6	1.8	G-.05 Negligible
Glacier Peak users	95.1	3.5	1.4	G-.05 Negligible
All users	96.0	2.3	1.7	G-.04 Negligible N=1328

2. Use of helicopters is justified in remote back-country recreational areas for protection of human life (e.g., rescues).

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	98.8	0.6	0.6	G.09 + Slight
Three Sisters users	98.4	0.8	0.8	G.04 Negligible
Glacier Peak users	98.6	1.4	0.0	G.03 Negligible
All users	98.6	1.0	0.4	G.06 + Slight N=1328

3. Use of helicopters is justified in remote back-country recreational areas for visits by prominent people.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	9.4	9.4	81.2	G-.34 - Strong
Three Sisters users	8.6	11.8	79.6	G-.29 - Moderate
Glacier Peak users	8.4	18.5	73.1	G-.42 - Strong
All users	8.8	13.7	77.5	G-.34 - Strong N=1326

4. Use of helicopters is justified in remote back-country recreational areas for routine administration and maintenance.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	62.3	9.8	27.9	G-.28 - Moderate
Three Sisters users	60.7	12.2	27.1	G-.31 - Strong
Glacier Peak users	61.6	13.2	25.2	G-.32 - Strong
All users	61.4	12.0	26.6	G-.30 - Strong N=1321

5. Use of helicopters is justified in remote back-country recreational areas for bringing material and equipment to construction sites which otherwise would require large strings of pack animals.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	66.8	12.8	20.4	G-.35 - Strong
Three Sisters users	66.3	13.7	20.0	G-.25 - Moderate
Glacier Peak users	66.6	16.0	17.4	G-.26 - Moderate
All users	66.5	14.3	19.2	G-.27 - Moderate N=1314

6. Use of helicopters is justified in remote back-country recreational areas for bringing patrolmen to and from the area.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	53.7	13.3	33.0	G-.36 - Strong
Three Sisters users	57.4	13.9	28.7	G-.30 - Strong
Glacier Peak users	56.7	16.8	26.5	G-.31 - Strong
All users	56.1	14.8	29.1	G-.31 - Strong N=1319

7. Use of helicopters is justified in remote back-country recreational areas for wildlife observation or control.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	75.1	9.1	15.8	G-.23 - Moderate
Three Sisters users	69.4	13.8	16.8	G-.30 - Strong
Glacier Peak users	73.0	11.5	15.5	G-.32 - Strong
All users	72.2	11.8	16.0	G-.28 - Moderate N=1327

V. Statements concerning trails in wilderness-type areas.–

1. Trails in remote back-country areas should be nonexistent, only blazed or marked routes.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	11.9	12.2	75.9	G .02 Negligible
Three Sisters users	13.5	13.9	72.6	G .08 + Slight
Glacier Peak users	11.2	13.3	75.5	G-.02 Negligible
All users	12.3	13.2	74.5	G .03 Negligible
				N=1314

2. Trails in remote back-country areas should be developed and maintained consistent with volume of use.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	85.6	7.6	6.8	G-.02 Negligible
Three Sisters users	86.8	8.2	5.0	G .02 Negligible
Glacier Peak users	87.3	7.4	5.3	G .09 + Slight
All users	86.6	7.8	5.6	G .04 Negligible
				N=1327

3. Trails in remote back-country areas should be of varied type and quality to different places, thus satisfying varied interests.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	78.0	14.4	7.6	G-.09 - Slight
Three Sisters users	74.8	19.0	6.2	G-.06 - Slight
Glacier Peak users	73.4	17.0	9.6	G-.05 Negligible
All users	75.2	17.1	7.7	G-.06 - Slight
				N=1322

4. Trails in remote back-country areas should be of high standard throughout the area.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	24.6	27.0	48.4	G-.33 - Strong
Three Sisters users	22.3	30.6	47.1	G-.25 - Moderate
Glacier Peak users	26.5	33.3	40.2	G-.21 - Moderate
All users	24.5	30.7	44.8	G-.25 - Moderate
				N=1320

5. Trails in remote back-country areas should be surfaced with sawdust or wood chips to keep dust down.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	4.1	18.4	77.5	G-.42 - Strong
Three Sisters users	3.0	16.4	80.6	G-.36 - Strong
Glacier Peak users	4.1	16.6	79.3	G-.42 - Strong
All users	3.7	17.0	79.3	G-.40 - Strong N=1324

VI. Statements concerning preferences for different kinds of signs in wilderness-type areas.–

A. Relating to sign construction materials

1. Signs in remote back-country areas should be of wood.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	81.6	13.9	4.5	G.19 + Moderate
Three Sisters users	74.9	19.3	5.8	G.05 Negligible
Glacier Peak users	78.4	13.5	8.1	G.01 Negligible
All users	77.9	15.8	6.3	G.07 + Slight N=1316

2. Signs in remote back-country areas should be of enameled metal.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	7.1	28.7	64.2	G-.20 - Moderate
Three Sisters users	7.5	34.6	57.9	G .00 Negligible
Glacier Peak users	9.7	31.9	58.4	G-.10 - Slight
All users	8.2	32.1	59.7	G-.08 - Slight N=1309

3. Signs in remote back-country areas should be of stamped aluminum or stainless steel.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	11.6	28.2	60.2	G-.17 - Moderate
Three Sisters users	18.1	33.8	48.1	G .07 + Slight
Glacier Peak users	16.9	31.3	51.8	G .13 + Slight
All users	16.0	31.5	52.5	G-.05 Negligible N=1313

B. Relating to content of signs in wilderness-type areas

1. Signs in remote back-country areas should be directional only, giving distances to key points.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	69.9	17.1	13.0	G.27 + Moderate
Three Sisters users	67.8	19.8	12.4	G.23 + Moderate
Glacier Peak users	70.2	17.7	12.1	G.24 + Moderate
All users	69.2	18.3	12.5	G.24 + Moderate
				N=1320

2. Signs in remote back-country areas should be descriptive, giving interpretation of features of the area.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	31.6	26.7	41.7	G-.47 - Strong
Three Sisters users	29.3	34.3	36.4	G-.36 - Strong
Glacier Peak users	26.4	34.3	39.3	G-.29 - Moderate
All users	28.9	32.3	38.8	G-.37 - Strong
				N=1321

C. Relating to the complexity and design of signs

1. Signs in remote back-country areas should be simple, one item per sign, several signs per post.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	46.8	29.4	23.8	G.18 + Moderate
Three Sisters users	35.9	35.9	28.2	G.06 + Slight
Glacier Peak users	41.6	31.8	26.6	G.01 Negligible
All users	40.8	32.7	26.5	G.07 + Slight
				N=1314

2. Signs in remote back-country areas should be simple, one item per sign, only one sign per post.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	16.2	37.4	46.4	G-.21 - Moderate
Three Sisters users	18.8	43.2	38.0	G-.01 Negligible
Glacier Peak users	12.6	44.1	43.3	G-.09 - Slight
All users	15.9	42.1	42.0	G-.10 - Slight
				N=1298

3. Signs in remote back-country areas should be elaborate, each sign large enough to include several items.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	16.8	28.7	54.5	G-.33 - Strong
Three Sisters users	18.9	32.3	48.8	G-.24 - Moderate
Glacier Peak users	20.4	33.4	46.2	G-.07 - Slight
All users	18.9	31.8	49.3	G-.20 - Moderate
				N=1306

D. Relating to the location of signs

1. Signs in remote back-country areas should be placed at trail junctions only.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	54.0	23.6	22.4	G.18 + Moderate
Three Sisters users	48.4	25.9	25.7	G.13 + Moderate
Glacier Peak users	48.3	25.7	26.0	G.16 + Moderate
All users	49.8	25.2	25.0	G.14 + Moderate
				N=1319

2. Signs in remote back-country areas should be grouped into a single directory of all routes emanating from one trailhead, with no further signs along the various trails.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	5.4	12.5	82.1	G-.02 Negligible
Three Sisters users	6.4	12.4	81.2	G .02 Negligible
Glacier Peak users	7.2	16.8	76.0	G-.01 Negligible
All users	6.5	14.0	79.5	G .00 Negligible
				N=1320

VII. Statements concerning facilities and site improvements in wilderness-type areas.–

A. Relating to toilet facilities

1. Outhouses are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	49.9	16.3	33.8	G-.46 - Strong
Three Sisters users	49.7	16.5	33.8	G-.31 - Strong
Glacier Peak users	51.5	17.3	31.2	G-.24 - Moderate
All users	50.5	16.7	32.8	G-.32 - Strong
				N=1316

2. No toilet facilities whatever are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	34.4	22.0	43.6	G.47 + Strong
Three Sisters users	32.4	22.9	44.7	G.30 + Strong
Glacier Peak users	30.4	23.8	45.8	G.24 + Moderate
All users	32.2	23.0	44.8	G.32 + Strong N=1305

B. Relating to tables and fireplaces

1. Tables constructed of logs or poles are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	38.9	19.5	41.6	G-.57 - Strong
Three Sisters users	39.5	22.9	37.6	G-.35 - Strong
Glacier Peak users	44.1	21.9	34.0	G-.41 - Strong
All users	41.0	21.7	37.3	G-.42 - Strong N=1311

2. Plank tables are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	23.1	21.5	55.4	G-.59 - Strong
Three Sisters users	22.2	24.4	53.4	G-.44 - Strong
Glacier Peak users	28.1	26.4	45.5	G-.48 - Strong
All users	24.5	24.4	51.1	G-.49 - Strong N=1308

3. Permanent (concrete) fireplaces are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	22.6	15.6	61.8	G-.61 - Strong
Three Sisters users	20.7	19.5	59.8	G-.39 - Strong
Glacier Peak users	25.9	17.3	56.8	G-.48 - Strong
All users	23.1	17.7	59.2	G-.47 - Strong N=1316

4. Movable rock fireplaces are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	40.6	23.5	35.8	G-.25 - Moderate
Three Sisters users	49.7	22.4	27.9	G-.11 - Slight
Glacier Peak users	52.4	22.5	25.1	G-.08 - Slight
All users	48.2	22.8	29.0	G-.13 - Slight N=1314

C. **Relating to developments implementing horse use**

1. Corrals for livestock are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	28.2	23.2	48.6	G-.31 - Strong
Three Sisters users	16.3	28.1	55.6	G-.14 - Slight
Glacier Peak users	25.6	25.4	49.0	G-.39 - Strong
All users	22.8	25.8	51.4	G-.27 - Moderate N=1313

2. Hitching racks or posts are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	30.8	25.8	43.4	G-.41 - Strong
Three Sisters users	21.7	23.5	44.8	G-.20 - Moderate
Glacier Peak users	33.2	27.7	39.1	G-.32 - Strong
All users	28.3	29.4	42.3	G-.29 - Moderate N=1309

3. Drift fences for control of livestock are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	35.5	23.5	41.0	G-.36 - Strong
Three Sisters users	29.0	28.3	42.7	G-.14 - Slight
Glacier Peak users	32.5	25.1	42.4	G-.34 - Strong
All users	32.0	25.9	42.1	G-.27 - Moderate N=1307

D. Relating to constructed shelters

1. Three-sided shelters for hikers are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	45.1	19.1	35.8	G-.41 - Strong
Three Sisters users	58.0	21.8	20.2	G-.12 - Slight
Glacier Peak users	63.0	16.1	20.9	G-.14 - Slight
All users	56.5	19.0	24.5	G-.19 - Moderate
				N=1323

2. Locked patrol cabins for official staff use only are consistent with proper use of remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	34.4	27.3	28.3	G-.24 - Moderate
Three Sisters users	36.3	33.4	30.3	G-.11 - Slight
Glacier Peak users	31.1	33.8	35.1	G-.22 - Moderate
All users	33.9	32.0	34.1	G-.18 - Moderate
				N=1313

VIII. Statements concerning rationing use or charging entrance fees in wilderness-type areas.—

1. Use of back country has to be restricted to limited numbers of people in a given area at a given time.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	28.5	23.5	48.0	G-.07 - Slight
Three Sisters users	33.7	23.9	42.4	G .12 + Slight
Glacier Peak users	24.7	21.8	53.5	G-.09 - Slight
All users	29.1	23.0	47.9	G-.02 Negligible
				N=1317

2. The use of pack animals should be prohibited in remote back-country recreational areas, since they do considerable damage to natural features.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	8.5	14.4	77.1	G-.01 Negligible
Three Sisters users	16.0	21.8	62.2	G .21 + Moderate
Glacier Peak users	17.4	17.8	64.8	G .21 + Moderate
All users	14.6	18.4	67.0	G .16 + Moderate
				N=1326

3. Costs of recreational back-country administration and maintenance should be defrayed by some form of moderate charge.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	44.2	23.2	32.6	G-.18 - Moderate
Three Sisters users	43.0	25.9	31.1	G-.10 - Slight
Glacier Peak users	37.6	26.4	36.0	G-.11 - Slight
All users	41.4	25.4	33.2	G-.13 - Slight
				N=1324

IX. Statements concerning restriction of resource management practices in wilderness-type areas.–

1. Man-caused fires in remote back-country recreational areas, and outbreaks of nonnative insects or diseases, should be extinguished as quickly as possible after they are detected.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	97.0	1.5	1.5	G.14 + Low
Three Sisters users	98.2	1.4	0.4	G.01 Negligible
Glacier Peak users	98.0	1.4	0.6	G.07 + Low
All users	97.9	1.4	0.7	G.06 + Low
				N=1330

2. Natural events in the normal history of a plant-and-animal community should not be artificially controlled in remote back-country areas; specifically, the following events should be allowed to run their course:

(a) Lightning-caused fires

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	2.7	3.2	94.1	G.06 + Low
Three Sisters users	3.0	1.8	95.2	G.14 + Low
Glacier Peak users	2.4	3.1	94.5	G.10 + Low
All users	2.7	2.6	94.7	G.10 + Low
				N=1328

(b) Heavy infestations of native insects

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	5.3	7.7	87.0	G.22 + Moderate
Three Sisters users	5.8	7.2	87.0	G.13 + Low
Glacier Peak users	6.8	5.7	87.5	G.13 + Low
All users	6.0	6.8	87.2	G.15 + Moderate
				N=1325

(c) Heavy infestations of forest diseases

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	5.1	4.7	90.2	G.23 + Moderate
Three Sisters users	3.4	5.2	91.4	G.15 + Moderate
Glacier Peak users	4.7	5.3	90.0	G.17 + Moderate
All users	4.3	5.1	90.6	G.18 + Moderate N=1326

3. Sections of remote back-country recreational areas, denuded by fire, insects, or disease, and subject to rapid erosion, should be protected as soon as possible by artificial restoration of an adequate cover of vegetation.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	91.2	4.1	4.7	G-.16 - Moderate
Three Sisters users	90.0	5.2	4.8	G-.12 - Low
Glacier Peak users	88.1	6.6	5.3	G-.15 - Moderate
All users	89.7	5.4	4.9	G-.16 - Moderate N=1326

4. Livestock grazing as a revenue-producing use should be encouraged in back-country areas principally devoted to recreation, since this will defray management costs.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	16.7	17.5	65.8	G-.31 - Strong
Three Sisters users	14.3	19.5	66.2	G-.29 - Moderate
Glacier Peak users	12.6	15.3	72.1	G-.36 - Strong
All users	14.3	17.5	68.2	G-.33 - Strong N=1322

5. Hunting should be forbidden in remote back-country recreational areas.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		-Percent-		
Eagle Cap users	36.9	12.0	51.1	G-.05 Negligible
Three Sisters users	43.6	17.2	39.2	G .12 + Slight
Glacier Peak users	39.7	15.0	45.3	G .09 + Slight
All users	44.6	15.0	40.4	G .06 + Slight N=1326

6. Even well-managed second-growth timber must always be assumed to have lower recreational value than a virgin forest.

	Agree	Neutral	Disagree	Correlation with wildernism scores
		Percent		
Eagle Cap users	35.0	15.3	49.7	G.31 + Strong
Three Sisters users	29.6	20.8	49.6	G.17 + Moderate
Glacier Peak users	40.0	15.5	44.5	G.40 + Strong
All users	34.8	17.4	47.8	G.30 + Strong N=1324

Hendee, John C., Catton, William R., Jr., Marlow, Larry D., and Brockman, C. Frank.
1968. Wilderness users in the Pacific Northwest – their characteristics, values, and management preferences. U.S.D.A. Forest Serv. Res. Pap. PNW-61, 92 pp., illus. Pacific Northwest Forest & Range Exp. Sta., Portland, Oreg.

Wilderness visitation typically occurs in more highly educated, small family and friendship groups who take about five 2- to 3-day trips per year. About 30 percent (400) belonged to 218 conservation groups. Those who were more wilderness purist in attitude reacted differently to some of the statements – 53 on wilderness management and 22 on codes of behavior – suggested in the questionnaire.

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The authors are respectively: Recreation Research Project Leader, Pacific Northwest Forest and Range Experiment Station, Forest Service; Professor of Sociology, University of Washington; (formerly) Graduate Research Assistant, College of Forest Resources, University of Washington (now in U. S. Air Force); and Professor of Forestry, University of Washington.

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